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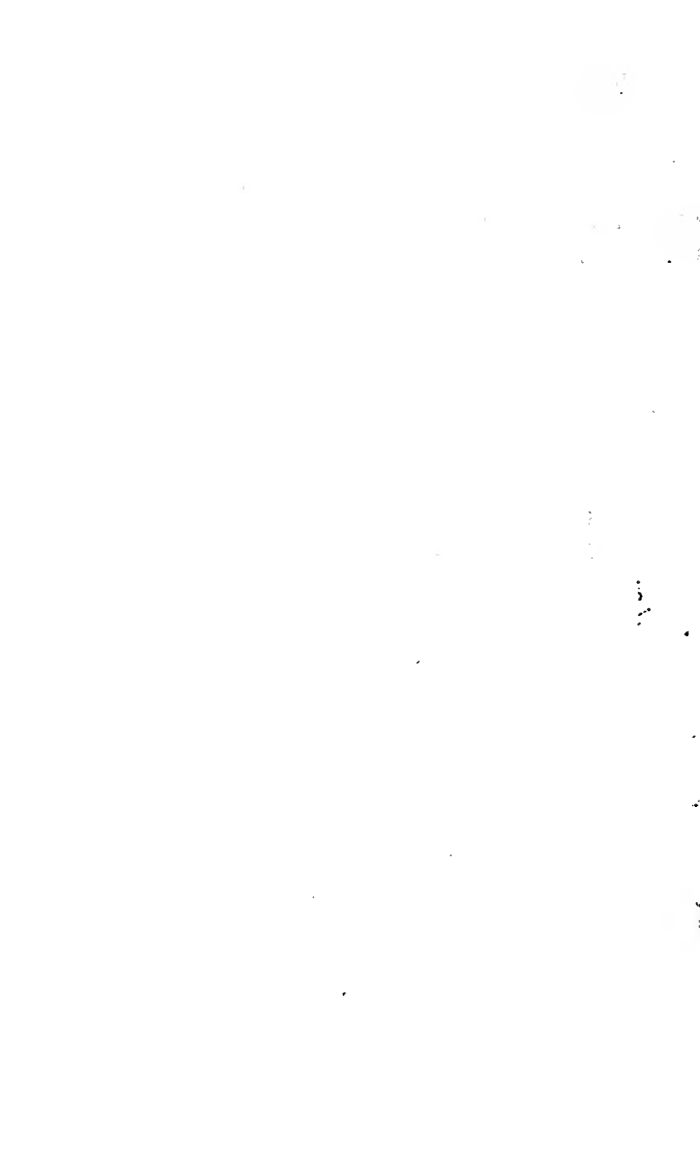
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ARISTOTLE

ON SOPHISTICAL REFUTATIONS
ON COMING-TO-BE AND PASSING-AWAY
ON THE COSMOS



ARISTOTLE. *Sophistical*

ON SOPHISTICAL REFUTATIONS ON COMING-TO-BE AND PASSING-AWAY

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ON THE COSMOS

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CONTENTS

	PAGE
PREFATORY NOTE	vii
DE SOPHISTICIS ELENCHIS—	
Introduction	2
Text and Translation	10
DE GENERATIONE ET CORRUPTIONE—	
Introduction	159
Text and Translation	162
DE MUNDO—	
Introduction	333
Text and Translation	344
INDICES—	
<i>To De Sophisticis Elenchis</i>	411
<i>To De Generatione et Corruptione</i>	415
<i>To De Mundo</i>	419



PREFATORY NOTE

PROFESSOR E. S. Forster completed his versions of *De Sophisticis Elenchis* and *De Generatione et Corruptione* before he died. I have checked the proofs and added a brief index.

D. J. FURLEY

LONDON

January 1955

DE SOPHISTICIS
ELENCHIS

INTRODUCTION

I. THE PLACE OF THE *TOPICA* IN THE *ORGANON*

BOTH the *Topica* and the *De Sophisticis Elenchis* have always been regarded as genuine works of Aristotle. The two treatises are closely connected; the *De Sophisticis Elenchis* is an appendix to the *Topica* and its final section forms an epilogue to both treatises; indeed Aristotle himself seems sometimes to regard the two as forming a single work, since he twice quotes the *De Sophisticis Elenchis* under the title of the *Topica*.

It is generally admitted that what we call logic and Aristotle himself calls analytic was an early pre-occupation of the philosopher and a direct outcome of discussions on scientific method held in the Platonic Academy. Plato himself, however, never attempted a formal treatment of the subject and the theories put forward, for example, in the *Theaetetus*, *Sophist*, *Parmenides* and *Politicus* were never developed into a regular system. But while Aristotle's systematic treatment of the process of inference and, above all, his discovery of the syllogism owe little to Plato, it has been generally recognized that the Platonic dialogues contain some of the germs from which the Aristotelian system was afterwards developed; for

ON SOPHISTICAL REFUTATIONS

example, in the *Theaetetus* the doctrine of the categories is already implicit in the recognition of the abstract notions of substance, quality, quantity, relation, activity and passivity.

Of the logical treatises of Aristotle, which since about A.D. 200 have passed under the title of the *Organon* or 'instrument' of science, the most important are (1) the *Prior Analytics*, in which he sets forth the doctrine of the syllogism in its formal aspect without reference to the subject-matter with which it deals, (2) the *Posterior Analytics*, in which he discusses the characteristics which reasoning must necessarily possess in order to be truly scientific, (3) the *Topica*, in which he treats of the modes of reasoning, which, while syllogistically correct, fall short of the conditions of scientific accuracy. The *Categories* and the *De Interpretatione* are subsidiary treatises dealing, in the main, with the term and the proposition.

A great deal of time and ingenuity has been expended, particularly by German scholars, in an attempt to fix the exact order in which the various treatises which constitute the *Organon* were composed. The problem is complicated by the fact that the treatises, in the form in which they have come down to us, seem to consist of rough notes, which were evidently subjected to a certain amount of revision due to the modification and development of his original doctrines. This process has naturally given rise to minor inconsistencies such as would naturally occur if corrections were made or additions inserted which were not completely adapted to the context in which they were placed.

It has been generally recognized that the whole

ARISTOTLE

of the *Topica* does not belong to the same date. H. Maier^a holds that the oldest portion consists of Books II-VII. 2 and that it was written under the direct influence of the Academy and belongs to the same period as the Aristotelian *Dialogues*, which have survived only in fragments ; in particular, he points out that the term *συλλογισμός* is not used in the technical sense which it afterwards acquired (or, if it is used in that sense, *e.g.*, in 130 a 7, it is a late insertion), whereas in the second half of Book VII the term is used in its well-known Aristotelian sense, and that, consequently, Books II-VII. 2 were composed before the philosopher made his greatest contribution to logic. He holds that Books I and VIII belong to the same period as Book VII. 4-5, and form an introduction and conclusion to the treatise written after the discovery of the syllogism and that the *De Sophisticis Elenchis* was a subsequent addition to the *Topica*. On the other hand, F. Solmsen^a and P. Gohlke^a hold that Books I-VII form the earlier portion of the work and that Book VIII and the *De Sophisticis Elenchis* were added subsequently.

As regards the relation of the *Topica* to the rest of the *Organon*, Maier considers the *Topica* as a whole to be earlier than the *Analytics* ; Solmsen suggests that the order was (1) *Topica* I-VII, (2) *Posterior Analytics* I, (3) *Topica* VIII and *De Sophisticis Elenchis*, (4) *Posterior Analytics* II, (5) *Prior Analytics* ; Gohlke holds that the traditional order of the two *Analytics* is correct, and that the *Topica* and *De Sophisticis Elenchis* presuppose the *Analytics*.

In short, there is general agreement that the bulk of the *Topica* embodies Aristotle's earliest contribu-

^a See Bibliography.

ON SOPHISTICAL REFUTATIONS

tion to the systematic study of logic and that it was written in part before his discovery of the syllogism.

II. THE CONTENT OF THE *TOPICA*

The purpose of the *Topica* is, in the words of its author (100 a 18 ff.), 'to discover a method by which we shall be able to reason from generally accepted opinions about any problem set before us and shall ourselves, when sustaining an argument, avoid saying anything self-contradictory'; that is to say, it aims at enabling the two participants, the 'questioner' and the 'answerer,' to sustain their parts in a dialectical discussion. The subject, then, of the treatise may be described as the dialectical syllogism based on premises which are merely probable as contrasted with the demonstrative, or scientific, syllogism, which is the subject of the *Posterior Analytics* and is based on premises which are true and immediate. The probable premises which make up the dialectical syllogism are described (100 b 21 f.) as 'those which commend themselves to all or to the majority or to the wise.' The uses of dialectic are, we are told, three in number, (1) for mental training, (2) for general conversation, and (3) for application to the sciences, because (a) if we can argue a question *pro* and *con*, we shall be in a better position to recognize truth and falsehood, and (b) since the first principles of the sciences cannot be scientifically demonstrated, the approach to them must be through the study of the opinions generally held about them.

After the general introduction in Book I, Aristotle, in Books II-VII. 3, gives a collection of the *τόποι* which

ARISTOTLE

give their name to the treatise. The term *τόποι* is somewhat difficult to define. They may be described as 'commonplaces' of argument or as general principles of probability which stand in the same relation to the dialectical syllogism as axioms stand to the demonstrative syllogism; in other words, they are 'the pigeon-holes from which dialectical reasoning is to draw its arguments.'^a

Books II and III deal with the problems of accident; Books IV and V with those of genus and property; Books VI and VII. 1-3 with those of definition. Books VII. 4-5 and Book VIII, after giving some additional notes, conclude the treatise by describing the practice of dialectical reasoning.

III. THE *DE SOPHISTICIS ELENCHIS*

Just as Aristotle treats of the demonstrative and the dialectical syllogism in the *Posterior Analytics* and the *Topica*, respectively, so in this treatise, which forms a kind of appendix to the *Topica*, he deals with the sophistical syllogism. A knowledge of this is part of the necessary equipment of the arguer, not in order that he may himself make use of it but that he may avoid it, and that the unwary may not be ensnared in the toils of sophistical argument; in fact, Aristotle is carrying on the Socratic and early-Platonic tradition by attacking the Sophists, who taught the use of logical fallacy in order to make the worse cause appear the better.

The term *ἐλεγχος* is strictly applied to the confutation of an actual adversary, but it is also used more

^a W. D. Ross, *Aristotle*, p. 59.

ON SOPHISTICAL REFUTATIONS

widely of the confutation of an imaginary opponent. The treatise is, in fact, a study of fallacies in general, which are classified under various headings and fall into two main classes, those which depend on the language employed and those which do not. Some of these fallacies would hardly deceive the most simple minds ; others, which Aristotle seems to have been the first person to expose and define, are capable not only of deceiving the innocent but also of escaping the notice of arguers who are employing them.

After two introductory chapters the work naturally falls into two parts, chapters 3-15, the refutation of fallacies, and chapters 16-33, the solution of fallacies, while chapter 34 forms an epilogue to the work.

IV. THE MANUSCRIPTS

The chief manuscripts for the *Topica* and *De Sophisticis Elenchis* are :

A	Urbinas 35	saec. ix-x ineunt.
B	Marcianus 201	an. 955
C	Coislinianus 330	saec. xi
D	Coislinianus 170	saec. xiv
u	Basileensis F. 11.21	saec. xi-xii
C	Vaticanus 1024	'satis vetustus'
P	Vaticanus 207	'non recens'
f	Marcianus App. IV. 5	saec. xiv
q	Ambrosianus M. 71	saec. xv
N	Laurentianus 72. 18	saec. xv
i	Laurentianus 72. 15	saec. xiv
T	Laurentianus 72. 12	saec. xiii
O	Marcianus 204	saec. xiv

Of these A and B are in a class by themselves.

ARISTOTLE

Bekker preferred A, Waitz B ; the Teubner Editors give a slight preference to B, the readings of which are sometimes supported by papyrus fragments. C sometimes preserves the true reading.

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IN translating the *Topica* and *De Sophisticis Elenchis* I have used the text of Bekker in the Berlin Edition, and when I translate any other reading this is noted at the foot of the page. I have constantly referred to the Teubner text of Strache-Wallies, which does not, however, seem to me to mark any considerable advance on that of Bekker. I have found Waitz's edition of the *Organon* of great use, and the Latin version of Pacius is often helpful. I have frequently consulted the Oxford translation by W. A. Pickard-Cambridge. For the *De Sophisticis Elenchis* the notes and paraphrase in Poste's edition are often enlightening, though I cannot always agree with his interpretation.

My aim in translating has been to represent Aristotle's meaning as closely and faithfully as I can in simple English without resorting to paraphrase or trying to express it in modern terminology.

I have to thank my friend and former colleague Professor W. S. Maguinness, of King's College, London, for reading through my version and giving me the benefit of his fine scholarship and accuracy. He has suggested several improvements in the text which I have been glad to adopt.

ΑΡΙΣΤΟΤΕΛΟΥΣ ΠΕΡΙ ΣΟΦΙΣΤΙΚΩΝ ΕΛΕΓΧΩΝ

164 a 20 I. Περὶ δὲ τῶν σοφιστικῶν ἐλέγχων καὶ τῶν
φαινομένων μὲν ἐλέγχων ὄντων δὲ παραλογισμῶν
ἄλλ' οὐκ ἐλέγχων λέγωμεν, ἀρξάμενοι κατὰ φύσιν
ἀπὸ τῶν πρώτων.

“Οτι μὲν οὖν οἱ μὲν εἰσὶ συλλογισμοί, οἱ δ' οὐκ
ὄντες δοκοῦσι, φανερόν. ὥσπερ γὰρ καὶ ἐπὶ τῶν
25 ἄλλων τοῦτο γίνεται διὰ τινος ὁμοιότητος, καὶ
ἐπὶ τῶν λόγων ὡσαύτως ἔχει. καὶ γὰρ τὴν ἕξιν
οἱ μὲν ἔχουσιν εὖ, οἱ δὲ φαίνονται, φυλετικῶς
164 b 20 φυσήσαντες καὶ ἐπισκευάσαντες αὐτούς, καὶ καλοὶ
οἱ μὲν διὰ κάλλος, οἱ δὲ φαίνονται, κομμώσαντες
αὐτούς. ἐπὶ τε τῶν ἀψύχων ὡσαύτως· καὶ γὰρ
τούτων τὰ μὲν ἄργυρος τὰ δὲ χρυσός ἐστιν ἀληθῶς,
τὰ δ' ἔστι μὲν οὐ, φαίνεται δὲ κατὰ τὴν αἴσθησιν,
οἷον τὰ μὲν λιθαργύρινα καὶ τὰ καττιτέρινα ἄργυρᾶ,
25 τὰ δὲ χολοβάφινα χρυσᾶ. τὸν αὐτὸν δὲ τρόπον
καὶ συλλογισμὸς καὶ ἔλεγχος ὁ μὲν ἔστιν, ὁ δ' οὐκ

^a The reference appears to be provision of members of the tribal choruses at Athens for choral competitions (see Xen. *Mem.* iii. 4, 5).

ARISTOTLE ON SOPHISTICAL REFUTATIONS

I. LET us now treat of sophistical refutations, that is, arguments which appear to be refutations but are really fallacies and not refutations, beginning, as is natural, with those which come first.

That some reasonings are really reasonings, but that others seem to be, but are not really, reasonings, is obvious. For, as this happens in other spheres from a similarity between the true and the false, so it happens also in arguments. For some people possess good physical condition, while others have merely the appearance of it, by blowing themselves out and dressing themselves up like the tribal choruses ^a; again, some people are beautiful because of their beauty, while others have the appearance of beauty because they trick themselves out. So too with inanimate things; for some of these are really silver and some gold, while others are not but only appear to our senses to be so; for example, objects made of litharge ^b or tin appear to be silver, and yellow-coloured objects appear to be gold. In the same way also reasoning and refutation are sometimes real and sometimes not, but appear to be real

INTRO-
DUCTION
(chs. i-ii).
The distinction
between
reasonings
and refuta-
tions which
are genuine
and those
which are
only appar-
ent, i.e.
sophistical.

^b Protoxide of lead, a by-product in the separation of silver from lead.

164 b

ἔστι μὲν, φαίνεται δὲ διὰ τὴν ἀπειρίαν· οἱ γὰρ
ἀπειροὶ ὥσπερ ἂν ἀπέχοντες πόρρωθεν θεωροῦσιν.

- 165 a ὁ μὲν γὰρ συλλογισμὸς ἐκ τινῶν ἐστὶ τεθέντων
ὥστε λέγειν ἕτερόν τι ἐξ ἀνάγκης τῶν κειμένων
διὰ τῶν κειμένων, ἔλεγχος δὲ συλλογισμὸς μετ'
ἀντιφάσεως τοῦ συμπεράσματος. οἱ δὲ τοῦτο
ποιοῦσι μὲν οὐ, δοκοῦσι δὲ διὰ πολλὰς αἰτίας, ὧν
5 εἷς τόπος εὐφύεστατός ἐστι καὶ δημοσιώτατος ὁ
διὰ τῶν ὀνομάτων. ἐπεὶ γὰρ οὐκ ἔστιν αὐτὰ τὰ
πράγματα διαλέγεσθαι φέροντας, ἀλλὰ τοῖς ὀνό-
μασιν ἀντὶ τῶν πραγμάτων χρώμεθα συμβόλοις,
τὸ συμβαίνειν ἐπὶ τῶν ὀνομάτων καὶ ἐπὶ τῶν πραγ-
μάτων ἡγούμεθα συμβαίνειν, καθάπερ ἐπὶ τῶν
10 ψήφων τοῖς λογιζομένοις. τὸ δ' οὐκ ἔστιν ὅμοιον.
τὰ μὲν γὰρ ὀνόματα πεπέρανται καὶ τὸ τῶν λόγων
πλήθος, τὰ δὲ πράγματα τὸν ἀριθμὸν ἀπειρά ἐστιν.
ἀναγκαῖον οὖν πλείω τὸν αὐτὸν λόγον καὶ τοῦνομα
τὸ ἐν σημαίνειν. ὥσπερ οὖν κακεῖ οἱ μὴ δεινοὶ
15 τὰς ψήφους φέρειν ὑπὸ τῶν ἐπιστημόνων παρα-
κροῦνται, τὸν αὐτὸν τρόπον καὶ ἐπὶ τῶν λόγων οἱ
τῶν ὀνομάτων τῆς δυνάμεως ἀπειροὶ παραλογί-
ζονται καὶ αὐτοὶ διαλεγόμενοι καὶ ἄλλων ἀκούοντες.
διὰ μὲν οὖν ταύτην τὴν αἰτίαν καὶ τὰς λεχθησο-
μένας ἔστι καὶ συλλογισμὸς καὶ ἔλεγχος φαινόμενος
20 μὲν οὐκ ὧν δέ. ἐπεὶ δ' ἐστὶ τισι μᾶλλον πρὸ ἔργου
τὸ δοκεῖν εἶναι σοφοῖς ἢ τὸ εἶναι καὶ μὴ δοκεῖν
(ἔστι γὰρ ἡ σοφιστικὴ φαινομένη σοφία οὕσα δ' οὐ,
12

ON SOPHISTICAL REFUTATIONS, I

owing to men's inexperience ; for the inexperienced are like those who view things from a distance. Reasoning is based on certain statements made in such a way as necessarily to cause the assertion of things other than those statements and as a result of those statements ; refutation, on the other hand, is reasoning accompanied by a contradiction of the conclusion. Some refutations do not affect their object but only appear to do so ; this may be due to several causes, of which the most fertile and widespread division is the argument which depends on names. For, since it is impossible to argue by introducing the actual things under discussion, but we use names as symbols in the place of the things, we think that what happens in the case of the names happens also in the case of the things, just as people who are counting think in the case of their counters. But the cases are not really similar ; (for names and a quantity of terms are finite, whereas things are infinite in number ; and so the same expression and the single name must necessarily signify a number of things.) As, therefore, in the above illustration, those who are not clever at managing the counters are deceived by the experts, in the same way in arguments also those who are unacquainted with the power of names are the victims of false reasoning, both when they are themselves arguing and when they are listening to others. For this reason, therefore, and for others which will be mentioned hereafter, there exist both reasoning and refutation which appear to be genuine but are not really so. But since in the eyes of some people it is more profitable to seem to be wise than to be wise without seeming to be so (for the sophistic art consists in apparent and

165 a

καὶ ὁ σοφιστῆς χρηματιστῆς ἀπὸ φαινομένης
 σοφίας ἀλλ' οὐκ οὔσης), δῆλον ὅτι ἀναγκαῖον τού-
 τοις καὶ τὸ τοῦ σοφοῦ ἔργον δοκεῖν ποιεῖν μᾶλλον
 25 ἢ ποιεῖν καὶ μὴ δοκεῖν. ἔστι δ' ὥς ἐν πρὸς ἐν
 εἰπεῖν ἔργον περὶ ἕκαστον τοῦ εἰδότος ἀψευδεῖν μὲν
 αὐτὸν περὶ ὧν οἶδε, τὸν δὲ ψευδόμενον ἐμφανίζειν
 δύνασθαι. ταῦτα δ' ἐστὶ τὸ μὲν ἐν τῷ δύνασθαι
 δοῦναι λόγον, τὸ δ' ἐν τῷ λαβεῖν. ἀνάγκη οὖν
 τοὺς βουλομένους σοφιστεῦειν τὸ τῶν εἰρημένων
 30 λόγων γένος ζητεῖν· πρὸ ἔργου γάρ ἐστιν· ἡ γὰρ
 τοιαύτη δύναμις ποιήσῃ φαίνεσθαι σοφόν, οὗ τυγ-
 χάνουσι τὴν προαίρεσιν ἔχοντες.

Ὅτι μὲν οὖν ἔστι τι τοιοῦτον λόγων γένος, καὶ
 ὅτι τοιαύτης ἐφίενται δυνάμεως οὗς καλοῦμεν σο-
 φιστάς, δῆλον. πόσα δ' ἐστὶν εἴδη τῶν λόγων τῶν
 35 σοφιστικῶν, καὶ ἐκ πόσων τὸν ἀριθμὸν ἡ δύνα-
 μις αὕτη συνέστηκε, καὶ πόσα μέρη τυγχάνει τῆς
 πραγματείας ὄντα, καὶ περὶ τῶν ἄλλων τῶν συντε-
 λούντων εἰς τὴν τέχνην ταύτην ἤδη λέγωμεν.

II. Ἔστι δὴ τῶν ἐν τῷ διαλέγεσθαι λόγων τέτ-
 165 b ταρα γένη, διδασκαλικοὶ καὶ διαλεκτικοὶ καὶ πειρα-
 στικοὶ καὶ ἐριστικοί, διδασκαλικοὶ μὲν οἱ ἐκ τῶν
 οἰκείων ἀρχῶν ἐκάστου μαθήματος καὶ οὐκ ἐκ
 τῶν τοῦ ἀποκρινομένου δοξῶν συλλογιζόμενοι (δεῖ
 γὰρ πιστεύειν τὸν μανθάνοντα), διαλεκτικοὶ δ' οἱ
 ἐκ τῶν ἐνδόξων συλλογιστικοὶ ἀντιφάσεως, πειρα-

ON SOPHISTICAL REFUTATIONS, I-II

not real wisdom, and the sophist is one who makes money from apparent and not real wisdom), it is clear that for these people it is essential to seem to perform the function of a wise man rather than actually to perform it without seeming to do so. To take a single point of comparison, it is the task of the man who has knowledge of a particular subject himself to refrain from fallacious arguments about the subjects of his knowledge and to be able to expose him who uses them. Of these functions the first consists in being able to give a reason, the second in being able to exact one. It is essential, therefore, for those who wish to play the sophist to seek out the kind of argument which we have mentioned ; for it is well worth his while, since the possession of such a faculty will cause him to appear to be wise, and this is the real purpose which sophists have in view.

It is clear, then, that a class of arguments of this kind exists, and that those whom we call sophists aim at this kind of faculty. Let us next discuss what are the various kinds of sophistical arguments and what are the various component parts of this faculty, and into what different divisions the treatment of the subject falls, and all the other elements which contribute to this art.

II. Of arguments used in discussion there are four kinds, Didactic, Dialectical, Examination-arguments and Contentious arguments. Didactic arguments are those which reason from the principles appropriate to each branch of learning and not from the opinions of the answerer (for he who is learning must take things on trust). Dialectical arguments are those which, starting from generally accepted opinions, reason to establish a contradiction. Examination-arguments

Four kinds of argument used in discussion :
(1) Didactic.

(2) Dialectical.

(3) Examination.

165 b

- 5 στικοὶ δ' οἱ ἐκ τῶν δοκούντων τῷ ἀποκρινομένῳ καὶ ἀναγκαίων εἶδέναι τῷ προσποιοιμένῳ ἔχειν τὴν ἐπιστήμην (ὃν τρόπον δέ, διώριται ἐν ἑτέροις), ἐριστικοὶ δ' οἱ ἐκ τῶν φαινομένων ἐνδόξων μὴ ὄντων δὲ συλλογιστικοὶ ἢ φαινόμενοι συλλογιστικοί. περὶ μὲν οὖν τῶν ἀποδεικτικῶν ἐν τοῖς Ἀνα-
- 10 λυτικοῖς εἴρηται, περὶ δὲ τῶν διαλεκτικῶν καὶ πειραστικῶν ἐν τοῖς ἄλλοις· περὶ δὲ τῶν ἀγωνιστικῶν καὶ ἐριστικῶν νῦν λέγωμεν.

III. Πρῶτον δὴ ληπτέον πόσων στοχάζονται οἱ ἐν τοῖς λόγοις ἀγωνιζόμενοι καὶ διαφιλονεικοῦντες. ἔστι δὲ πέντε ταῦτα τὸν ἀριθμόν, ἔλεγχος καὶ

15 ψεῦδος καὶ παράδοξον καὶ σολοικισμὸς καὶ πέμπτον τὸ ποιῆσαι ἀδολεσχεῖν τὸν προσδιαλεγόμενον· τοῦτο δ' ἐστὶ τὸ πολλάκις ἀναγκάζεσθαι ταῦτὸ λέγειν· ἢ τὸ μὴ ὄν, ἀλλὰ τὸ φαινόμενον ἕκαστον εἶναι τούτων. μάλιστα μὲν γὰρ προαιροῦνται φαίνεσθαι ἐλέγχοντες, δεύτερον δὲ ψευδόμενόν τι

20 δεικνύναι, τρίτον εἰς παράδοξον ἄγειν, τέταρτον δὲ σολοικίζειν ποιεῖν· τοῦτο δ' ἐστὶ τὸ ποιῆσαι τῇ λέξει βαρβαρίζειν ἐκ τοῦ λόγου τὸν ἀποκρινόμενον· τελευταῖον δὲ τὸ πλεονάκις ταῦτὸ λέγειν.

IV. Τρόποι δ' εἰσὶ τοῦ μὲν ἐλέγχειν δύο· οἱ μὲν γὰρ εἰσι παρὰ τὴν λέξιν, οἱ δ' ἔξω τῆς λέξεως.

25 ἔστι δὲ τὰ μὲν παρὰ τὴν λέξιν ἐμποιοῦντα τὴν φαντασίαν ἔξ τὸν ἀριθμόν· ταῦτα δ' ἐστὶν ὁμωνυμία, ἀμφιβολία, σύνθεσις, διαίρεσις, προσωδία, σχῆμα λέξεως. τούτου δὲ πίστις ἢ τε διὰ τῆς ἐπαγωγῆς καὶ συλλογισμός, ἂν τε ληφθῇ τις ἄλλος, καὶ ὅτι

^a *Topics* 159 a 25 ff.^b *Topics* i-viii.

ON SOPHISTICAL REFUTATIONS, II-IV

are those which are based on opinions held by the answerer and necessarily known to one who claims knowledge of the subject involved (in what manner, has been described elsewhere ^a). Contentious arguments are those which reason or seem to reason from opinions which appear to be, but are not really, generally accepted. Demonstrative arguments have been treated in the *Analytics*, and dialectical arguments and examinations have been dealt with elsewhere.^b Let us now deal with competitive and contentious arguments. (4) Contentious.

III. We must first of all comprehend the various objects at which those aim who compete and contend in argument. They number five : refutation, fallacy, paradox, solecism, and, fifthly, the reduction of one's opponent to a state of babbling, that is, making him to say the same thing over and over again ; or, if not the reality, at any rate the appearance of each of these things. Their first choice is a plain refutation, their second to show that their opponent is lying, their third to lead him on to a paradox, their fourth to make him commit a solecism (that is, to make the answerer, as a result of the argument, speak ungrammatically), and, lastly, to make him say the same thing over and over again. THE PERPETRATION OF FALLACIES (chs. iii-xv). The aims of contentious argument are five in number.

IV. There are two modes of refutations ; one has to do with the language used, the other is unconnected with the language. The methods of producing a false illusion in connexion with language are six in number : equivocation, ambiguity, combination, division, accent and form of expression. The truth of this can be verified by induction and by syllogistic proof based on this (though some other assumption is also possible), that this is the number of ways in (A) REFUTATION (chs. iv-xi). (a) *Refutation by fallacies which depend on diction*, which are six in number, being due to :

165 b

τοσανταχῶς ἂν τοῖς αὐτοῖς ὀνόμασι καὶ λόγοις μὴ
 30 ταῦτὸ δηλώσαιμεν. εἰσὶ δὲ παρὰ μὲν τὴν ὁμω-
 νυμίαν οἱ τοιοῖδε τῶν λόγων, οἷον ὅτι μανθάνουσιν
 οἱ ἐπιστάμενοι· τὰ γὰρ ἀποστοματιζόμενα μανθά-
 νουσιν οἱ γραμματικοί. τὸ γὰρ μανθάνειν ὁμώ-
 νυμον, τό τε ξυνιέναι χρώμενον τῇ ἐπιστήμῃ καὶ
 τὸ λαμβάνειν ἐπιστήμην. καὶ πάλιν ὅτι τὰ κακὰ
 35 ἀγαθὰ· τὰ γὰρ δέοντα ἀγαθὰ, τὰ δὲ κακὰ δέοντα.
 διττὸν γὰρ τὸ δέον, τό τ' ἀναγκαῖον, ὃ συμβαίνει
 πολλάκις καὶ ἐπὶ τῶν κακῶν (ἔστι γὰρ κακόν τι
 ἀναγκαῖον), καὶ τὰγαθὰ δὲ δέοντά φαμεν εἶναι.
 ἔτι τὸν αὐτὸν καθῆσθαι καὶ ἐστάναι, καὶ κάμνειν
 καὶ ὑγιαίνειν. ὅσπερ γὰρ ἀνίστατο, ἔστηκεν, καὶ
 166 a ὅσπερ ὑγιάζετο, ὑγιαίνει· ἀνίστατο δ' ὁ καθήμενος
 καὶ ὑγιάζετο ὁ κάμνων. τὸ γὰρ τὸν κάμνοντα
 ὁτιοῦν ποιεῖν ἢ πάσχειν οὐχ ἓν σημαίνει, ἀλλ' ὅτε
 μὲν ὅτι ὁ νῦν κάμνων,¹ ὅτε δ' ὃς ἔκαμνε πρότερον.
 5 πλὴν ὑγιάζετο μὲν καὶ κάμνων καὶ ὁ κάμνων·
 ὑγιαίνει δ' οὐ κάμνων, ἀλλ' ὁ κάμνων, οὐ νῦν, ἀλλ'
 ὁ πρότερον. παρὰ δὲ τὴν ἀμφιβολίαν οἱ τοιοῖδε,
 τὸ βούλεσθαι λαβεῖν με τοὺς πολεμίους. καὶ ἄρ'
 ὃ τις γινώσκει, τοῦτο γινώσκει; καὶ γὰρ τὸν γινώ-
 σκοντα καὶ τὸ γινωσκόμενον ἐνδέχεται ὥς γινώ-
 σκοντα σημῆναι τούτῳ τῷ λόγῳ. καὶ ἄρα ὁ ὁρᾷ

¹ Deleting ἢ καθήμενος after κάμνων with Wallies.

^a i.e. can write or spell.

^b i.e. 'ought to be.'

ON SOPHISTICAL REFUTATIONS, IV

which we can fail to indicate the same thing by the same terms or expressions. Arguments such as the following are based on equivocation: 'Those who know, learn; for it is those who know the use of letters that learn ^a what is dictated to them.' Here 'learn' is equivocal, meaning 'understand by using knowledge' and 'acquire knowledge.' Or again, 'Evils are good, for what must exist is good, and evil must exist.' Here 'must exist' is used in two senses; it means 'what is necessary,' which is often true of evils (for some evil is necessary), and we also say that good things 'must exist.'^b Or again, 'the same man is seated and standing and is a sick man and restored to health; for it is the man who stood up that is standing, and it is he who was recovering his health that is restored to health, but it was the man who was seated that stood up and the man who was sick that was recovering.' For that 'the sick man' does such and such a thing or has such and such a thing done to him, has not one meaning only but at one time means 'the man who is now sick,' and at another time 'the man who was formerly sick.' But it was the sick man who began to recover his health when he was actually sick, but he is in good health when he is not sick and is not the sick man now but the man who was formerly sick. The following examples are connected with ambiguity: 'To wish me the enemy to capture,' and 'when a man knows something, surely there is knowledge of this'; for it is possible by this expression to signify both the knower and the thing known as knowing.^c And 'what a man sees, surely that

(1) Equivocation.

(2) Ambiguity.

^c *i.e.* 'knowledge of this' can mean either knowledge on the part of the knower or knowledge of the thing known.

- 10 *τις, τοῦτο ὁρά;* ὁρά δὲ τὸν κίονα, ὥστε ὁρά ὁ κίων. καὶ ἄρα ὁ σὺ φῆς εἶναι, τοῦτο σὺ φῆς εἶναι; φῆς δὲ λίθον εἶναι, σὺ ἄρα φῆς λίθος εἶναι. καὶ ἄρ' ἔστι σιγῶντα λέγειν; διττὸν γὰρ καὶ τὸ σιγῶντα λέγειν, τό τε τὸν λέγοντα σιγᾶν καὶ τὸ τὰ λεγόμενα. εἰσὶ δὲ τρεῖς τρόποι τῶν παρὰ τὴν
- 15 ὁμωνυμίαν καὶ τὴν ἀμφιβολίαν, εἰς μὲν ὅταν ἡ ὁ λόγος ἢ τοῦνομα κυρίως σημαίνει πλείω, οἷον ἀετὸς καὶ κύων· εἰς δὲ ὅταν εἰωθότες ὦμεν οὕτω λέγειν· τρίτος δὲ ὅταν τὸ συντεθὲν πλείω σημαίνει, κεχωρισμένον δὲ ἀπλῶς, οἷον τὸ ἐπίσταται γράμματα. ἐκάτερον μὲν γάρ, εἰ ἔτυχεν, ἔν τι σημαίνει, τὸ
- 20 ἐπίσταται καὶ τὰ γράμματα· ἄμφω δὲ πλείω, ἢ τὸ τὰ γράμματα αὐτὰ ἐπιστήμην ἔχειν ἢ τῶν γραμμάτων ἄλλον.

Ἡ μὲν οὖν ἀμφιβολία καὶ ὁμωνυμία παρὰ τούτους τοὺς τρόπους ἐστίν, παρὰ δὲ τὴν σύνθεσιν τὰ τοιαῦδε, οἷον τὸ δύνασθαι καθήμενον βαδίζειν καὶ

25 μὴ γράφοντα γράφειν. οὐ γὰρ ταῦτο σημαίνει, ἂν διελὼν τις εἶπῃ καὶ συνθεῖς, ὥς δυνατόν τὸ¹ καθήμενον βαδίζειν². καὶ τοῦθ' ὡσαύτως ἂν τις συνθῇ, τὸ μὴ γράφοντα γράφειν· σημαίνει γὰρ ὥς ἔχει δύναμιν τοῦ μὴ γράφοντα γράφειν. ἐὰν δὲ

30 μὴ συνθῇ, ὅτι ἔχει δύναμιν, ὅτε οὐ γράφει, τοῦ

¹ Reading τὸ for τὸν.

² Deleting καὶ μὴ γράφοντα γράφειν after βαδίζειν with Wallies.

^a The personal pronoun not being expressed in Greek, τοῦτο, being neuter, can be either the subject or object of the verb ὁρά.

^b 'eagle' or 'pediment.'

^c 'Dog,' 'dogstar' or 'Cynic philosopher.'

^d In which case the meaning is that a man, while sitting, has the power to walk (if he wishes to do so).

(he) ^a sees : a man a pillar sees, therefore the pillar sees.' Again, ' Surely you insist on being what you insist on being. You insist on a stone being : therefore, you insist on being a stone.' Again ' Surely speaking is possible of the silent.' ' Speaking of the silent ' can also be taken in two ways, either that the speaker is silent or the things spoken of are silent. There are three modes connected with equivocation and ambiguity : (1) when the expression or name properly signifies more than one thing, such as *ἀετός* ^b and *κύων*, ^c (2) when we customarily use a word in more than one sense, (3) when a word has more than one meaning in combination with another word, though by itself it has only one meaning, for example, ' knowing letters ' ; for it may so happen that taken separately ' knowing ' and ' letters ' have only one meaning, but taken together they have more than one meaning, namely, either that the letters themselves have knowledge or that someone else has knowledge of the letters.

Ambiguity and equivocation then take these forms. The following examples are connected with the combination of words, for instance, ' A man can walk when sitting and write when not writing.' The significance is not the same if one utters the words separately ^d as it is if one combines them, namely, ' a man can walk-while-sitting,' ^e and, similarly, in the other example, if one combines the words and says ' a man can write-when-not-writing,' for it means that he can write and not write at the same time ; whereas if one does not combine the words it means that, when he is not writing, he has the power to

(3) Combination of words.

^e In which case the meaning is that it is possible for a man to walk and sit at the same time.

166 a

γράφειν. καί, μανθάνει νῦν γράμματα, εἴπερ ἐμάν-
θανεν ἃ ἐπίσταται. ἔτι τὸ ἐν μόνον δυνάμενον
φέρειν πολλὰ δύνασθαι φέρειν.

Παρά δὲ τὴν διαίρεσιν, ὅτι τὰ πέντ' ἐστὶ δύο
καὶ τρία, καὶ περιττὰ καὶ ἄρτια, καὶ τὸ μείζον ἴσον.
35 τοσοῦτον γὰρ καὶ ἔτι πρὸς. ὁ γὰρ αὐτὸς λόγος
διηρημένος καὶ συγκείμενος οὐκ ἀεὶ ταὐτὸ σημαί-
νειν ἂν δόξειεν, οἷον "ἐγὼ σ' ἔθηκα δοῦλον ὄντ'
ἐλεύθερον" καὶ τὸ "πεντήκοντ' ἀνδρῶν ἑκατὸν
λίπε δῖος Ἀχιλλεύς."

166 b

Παρά δὲ τὴν προσωδίαν ἐν μὲν τοῖς ἄνευ γραφῆς
διαλεκτικοῖς οὐ ῥάδιον ποιῆσαι λόγον, ἐν δὲ τοῖς
γεγραμμένοις καὶ ποιήμασι μᾶλλον, οἷον καὶ τὸν
"Ὀμηρον ἔνιοι διορθοῦνται πρὸς τοὺς ἐλέγχοντας
5 ὡς ἀτόπως εἰρηκότα "τὸ μὲν οὐ καταπύθεται
ὄμβρῳ." λύουσι γὰρ αὐτὸ τῇ προσωδίᾳ, λέγοντες
τὸ οὐ ὀξύτερον. καὶ τὸ περὶ τὸ ἐνύπνιον τοῦ
'Αγαμέμνονος, ὅτι οὐκ αὐτὸς ὁ Ζεὺς εἶπεν "δίδο-
μεν δέ οἱ εὖχος ἀρέσθαι," ἀλλὰ τῷ ἐνυπνίῳ ἐνε-
τέλλετο διδόναι. τὰ μὲν οὖν τοιαῦτα παρὰ τὴν
προσωδίαν ἐστίν.

10 Οἱ δὲ παρὰ τὸ σχῆμα τῆς λέξεως συμβαίνουσιν,

^a With a different combination of words this can mean, 'He understands now what he knows because he has understood letters.'

^b This can also be taken to mean, 'Being able to carry many things, you can carry one single thing only.'

^c If $5=2$ and 3 , $5=2$ and $5=3$, and so 5 is both odd and even: again, if $5=2$ and $5=3$, then $3=2$, i.e. the greater = the less, since 3 is also $2+1$.

^d From an unknown source in Greek comedy imitated by Terence, *Andria* 37.

ON SOPHISTICAL REFUTATIONS, IV

write. Again, 'He now understands letters, since he has understood what he knows'^a; and further, 'One single thing being able to carry, many things you can carry.'^b

The following propositions are connected with division: '5 is 2 and 3,' '5 is odd and even,' 'the greater is equal to the less,' for it is so much and something more.^c For the same sentence divided would not always seem to have the same meaning as when taken as a whole, for example, 'Free I made thee a slave'^d and 'goodly Achilles left a hundred (and) fifty men.'^e

(4) Division of words.

It is not easy to construct an argument relating to accent in discussions which are not written down, but it is easier in written matter and poetry. For example, some people emend Homer to meet the objection of critics that his phrase 'τὸ μὲν οὐ καταπύθεται ὄμβρῳ' is a strange one.^f For they solve the difficulty by a change of accent, pronouncing the *οὐ* more sharply.^g Also in the passage about Agamemnon's dream^h they say that Zeus himself did not say, 'But we grantⁱ him to secure the fulfilment of his prayer' but bade the dream to grant it.^j Such examples, then, depend on accentuation.

(5) Accent.

Refutations which depend on the form of expres-

(6) Form of expression.

^e Probably quoted from some Cyclic poem. The words can mean either 'left 150 men' or 'left a hundred men fifty.'

^f *Il.* xxiii. 328: 'part of which decays in the rain.'

^g *i.e.* substituting *οὐ*, 'not,' for *οὐδ*: 'and it does not decay in the rain.'

^h *Il.* ii. 1-35; but the actual words quoted occur in *Il.* xxi. 297 and are spoken by Poseidon. For this and the following example see *Poet.* 1461 a 22-23.

ⁱ *i.e.* *δίδωμεν*.

^j *i.e.* *διδόμεν* = *διδόναι*, the infinitive being used as an imperative.

166 b

ὅταν τὸ μὴ ταῦτὸ ὡσαύτως ἐρμηνεύηται, οἷον τὸ ἄρρεν θῆλυ ἢ τὸ θῆλυ ἄρρεν, ἢ τὸ μεταξὺ θάτερον τούτων, ἢ πάλιν τὸ ποιὸν ποσὸν ἢ τὸ ποσὸν ποιόν, ἢ τὸ ποιοῦν πάσχον ἢ τὸ διακείμενον ποιεῖν, καὶ
 15 τᾶλλα δ', ὡς διήρηται πρότερον. ἔστι γὰρ τὸ μὴ τῶν ποιεῖν ὄν ὡς τῶν ποιεῖν τι τῇ λέξει σημαίνειν. οἷον τὸ ὑγιαίνειν ὁμοίως τῷ σχήματι τῆς λέξεως λέγεται τῷ τέμνειν ἢ οἰκοδομεῖν· καίτοι τὸ μὲν ποιόν τι καὶ διακείμενόν πως δηλοῖ, τὸ δὲ ποιεῖν τι. τὸν αὐτὸν δὲ τρόπον καὶ ἐπὶ τῶν ἄλλων.

20 Οἱ μὲν οὖν παρὰ τὴν λέξιν ἔλεγκοι ἐκ τούτων τῶν τόπων εἰσίν· τῶν δ' ἔξω τῆς λέξεως παραλογισμῶν εἶδη ἐστὶν ἐπτά, ἐν μὲν παρὰ τὸ συμβεβηκός, δεύτερον δὲ τὸ ἀπλῶς ἢ μὴ ἀπλῶς ἀλλὰ πῇ ἢ ποῦ ἢ ποτέ ἢ πρὸς τι λέγεσθαι, τρίτον δὲ τὸ παρὰ τὴν τοῦ ἐλέγχου ἄγνοιαν, τέταρτον δὲ τὸ
 25 παρὰ τὸ ἐπόμενον, πέμπτον δὲ τὸ παρὰ <τὸ> τὸ ἐν ἀρχῇ λαμβάνειν,¹ ἕκτον δὲ τὸ μὴ αἷτιον ὡς αἷτιον τιθέναι, ἑβδομον δὲ τὸ τὰ πλείω ἐρωτήματα ἐν ποιεῖν.

V. Οἱ μὲν οὖν παρὰ τὸ συμβεβηκός παραλογισμοί εἰσιν, ὅταν ὁμοίως ὁτιοῦν ἀξιωθῇ τῷ πράγ-
 30 ματι καὶ τῷ συμβεβηκότι ὑπάρχειν. ἐπεὶ γὰρ τῷ αὐτῷ πολλὰ συμβέβηκεν, οὐκ ἀνάγκη πᾶσι τοῖς κατηγορουμένοις, καὶ καθ' οὗ κατηγορεῖται, ταῦτ' α² πάντα ὑπάρχειν. οἷον εἰ ὁ Κορίσκος ἕτερον ἀν-

¹ Reading παρὰ <τὸ> τὸ ἐν ἀρχῇ λαμβάνειν with Strache.

² Reading ταῦτ' α with Casaubon.

sion occur when what is not the same is expressed in the same form ; for example, when the masculine is expressed by the feminine or *vice versa*, or the neuter by the masculine or feminine ; or again when a quality is expressed by a quantity or *vice versa*, or the active by a passive or a state by the active, and so forth according to the distinctions previously made.^a For it is possible for something which is *not* of the nature of an action to signify by the language used something which is of the nature of an action ; for example, to 'flourish' is a form of expression like to 'cut' or to 'build' ; yet the former denotes a quality and a certain disposition, the latter an action. So too with the other possible examples.

Refutations, then, connected with language are based on these commonplaces. Of fallacies unconnected with language there are seven kinds : (1) those connected with Accident ; (2) those in which an expression is used absolutely, or not absolutely but qualified as to manner or place or time or relation ; (3) those connected with ignorance of the nature of refutation ; (4) those connected with the consequent ; (5) those connected with the assumption of the original point to be proved ; (6) those which assert that what is not a cause is a cause ; (7) the making of several questions into one.

(b) By fallacies which are not dependent on diction. These are seven in number, depending on :

V. Fallacies connected with Accident occur when it is claimed that some attribute belongs similarly to the thing and to its accident ; for since the same thing has many accidents, it does not necessarily follow that all the same attributes belong to all the predicates of a thing and to that of which they are predicated. For example, 'If Coriscus is different

(1) Accident.

^a *Topics* 103 b 20 ff.

166 b

θρώπου, αὐτὸς αὐτοῦ ἕτερος· ἔστι γὰρ ἄνθρωπος.
 ἢ εἰ Σωκράτους ἕτερος, ὁ δὲ Σωκράτης ἄνθρωπος,
 35 ἕτερον ἀνθρώπου φασὶν ὠμολογηκέναι διὰ τὸ συμ-
 βεβηκέναι, οὗ ἔφησεν ἕτερον εἶναι, τοῦτον εἶναι
 ἄνθρωπον.

Οἱ δὲ παρὰ τὸ ἀπλῶς τόδε ἢ πῇ λέγεσθαι καὶ μὴ
 κυρίως, ὅταν τὸ ἐν μέρει λεγόμενον ὡς ἀπλῶς
 167 a εἰρημένον ληφθῇ, οἷον εἰ τὸ μὴ ὄν ἐστι δοξαστόν,
 ὅτι τὸ μὴ ὄν ἔστιν· οὐ γὰρ ταῦτόν εἶναί τί τι καὶ
 εἶναι ἀπλῶς. ἢ πάλιν ὅτι τὸ ὄν οὐκ ἔστιν ὄν, εἰ
 τῶν ὄντων τι μὴ ἔστιν, οἷον εἰ μὴ ἄνθρωπος. οὐ
 5 γὰρ ταῦτό μὴ εἶναί τι καὶ ἀπλῶς μὴ εἶναι· φαίνεται
 δὲ διὰ τὸ πάρεγγυς τῆς λέξεως καὶ μικρὸν διαφέ-
 ρειν τὸ εἶναί τι τοῦ εἶναι καὶ τὸ μὴ εἶναί τι τοῦ μὴ
 εἶναι. ὁμοίως δὲ καὶ τὸ παρὰ τὸ πῇ καὶ τὸ ἀπλῶς.
 οἷον εἰ ὁ Ἰνδὸς ὄλος μέλας ὢν λευκός ἐστι τοὺς
 ὀδόντας· λευκὸς ἄρα καὶ οὐ λευκός ἐστιν. ἢ εἰ
 10 ἄμφω πῇ, ὅτι ἅμα τὰ ἐναντία ὑπάρχει. τὸ δὲ
 τοιοῦτον ἐπ' ἐνίων μὲν παντὶ θεωρῆσαι ῥάδιον, οἷον
 εἰ λαβὼν τὸν Αἰθίοπα εἶναι μέλανα τοὺς ὀδόντας
 ἔροιτ' εἰ λευκός· εἰ οὖν ταύτῃ λευκός, ὅτι μέλας
 καὶ οὐ μέλας, οἷοιτο διειλέχθαι συλλογιστικῶς
 τελειώσας τὴν ἐρώτησιν. ἐπ' ἐνίων δὲ λανθάνει
 26

ON SOPHISTICAL REFUTATIONS, v

from "man," he is different from himself, for he is a man'; or 'if he is different from Socrates, and Socrates is a man,' they say that it has been admitted that Coriscus is different from a man, because it is an accident that the person from which he said that Coriscus is different is a man.

Fallacies connected with the use of some particular expression absolutely or in a certain respect and not in its proper sense, occur when that which is predicated in part only is taken as though it was predicated absolutely. For example, 'If that-which-is-not is an object of opinion, then that-which-is-not is'; for it is not the same thing 'to be something' and 'to be' absolutely. Or again, 'That-which-is is not, if it is not one of the things which are, *e.g.* if it is not a man.' For it is not the same thing 'not to be something' and 'not to be' absolutely; but, owing to the similarity of the language, 'to be something' appears to differ only a little from 'to be,' and 'not to be something' from 'not to be.' In like manner when something is predicated in a certain respect and absolutely; for example, 'If an Indian, being black all over, is white in respect of his teeth, then he is white and not white.' Or if both attributes belong in a certain respect, they say that the contrary attributes belong simultaneously. In some cases this sort of fallacy can be easily perceived by anyone; if, for example, after securing an admission that the Ethiopian is black, one were to ask whether he is white in respect of his teeth, and then, if he be white in this respect, were to think that he had finished the interrogation and had proved dialectically that he was both black and not black. In some cases, on the other hand, the fallacy escapes detection, namely,

(2) The use of words absolutely or with some qualification.

167 a

15 πολλάκις, ἐφ' ὅσων, ὅταν πῇ λέγεται, καὶ τὸ
 ἀπλῶς δόξειεν ἀκολουθεῖν, καὶ ἐν ὅσοις μὴ ῥάδιον
 θεωρῆσαι πότερον αὐτῶν κυρίως ἀποδοτέον. γίνε-
 ται δὲ τὸ τοιοῦτον ἐν οἷς ὁμοίως ὑπάρχει τὰ ἀντι-
 κείμενα· δοκεῖ γὰρ ἢ ἄμφω ἢ μηδέτερον δοτέον
 ἀπλῶς εἶναι κατηγορεῖν, οἷον εἰ τὸ μὲν ἡμισυ
 20 λευκὸν τὸ δ' ἡμισυ μέλαν, πότερον λευκὸν ἢ
 μέλαν;

Οἱ δὲ παρὰ τὸ μὴ διωρίσθαι τί ἐστὶ συλλογισμὸς
 ἢ τί ἔλεγχος, ἀλλὰ παρὰ τὴν ἔλλειψιν γίνονται τοῦ
 λόγου· ἔλεγχος μὲν γὰρ ἀντίφασις τοῦ αὐτοῦ καὶ
 ἐνός, μὴ ὀνόματος ἀλλὰ πράγματος, καὶ ὀνόματος
 25 μὴ συνωνύμου ἀλλὰ τοῦ αὐτοῦ, ἐκ τῶν δοθέντων,
 ἐξ ἀνάγκης, μὴ συναριθμουμένου τοῦ ἐν ἀρχῇ,
 κατὰ ταῦτὸ καὶ πρὸς ταῦτὸ καὶ ὡσαύτως καὶ ἐν
 τῷ αὐτῷ χρόνῳ. τὸν αὐτὸν δὲ τρόπον καὶ τὸ
 ψεύσασθαι περὶ τινος. ἔνιοι δὲ ἀπολιπόντες τι
 τῶν λεχθέντων φαίνονται ἐλέγχειν, οἷον ὅτι ταῦτὸ
 30 διπλάσιον καὶ οὐ διπλάσιον· τὰ γὰρ δύο τοῦ μὲν
 ἐνός διπλάσια, τῶν δὲ τριῶν οὐ διπλάσια. ἢ εἰ τὸ
 αὐτὸ τοῦ αὐτοῦ διπλάσιον καὶ οὐ διπλάσιον, ἀλλ'
 οὐ κατὰ ταῦτό· κατὰ μὲν γὰρ τὸ μῆκος διπλάσιον,
 κατὰ δὲ τὸ πλάτος οὐ διπλάσιον. ἢ εἰ τοῦ αὐτοῦ
 καὶ κατὰ ταῦτὸ καὶ ὡσαύτως, ἀλλ' οὐχ ἅμα· διόπερ
 35 ἐστὶ φαινόμενος ἔλεγχος. ἔλκοι δ' ἂν τις τοῦτον
 καὶ εἰς τοὺς παρὰ τὴν λέξιν.

Οἱ δὲ παρὰ τὸ ἐν ἀρχῇ λαμβάνειν γίνονται μὲν

ON SOPHISTICAL REFUTATIONS, v

where, when an attribute is ascribed in some respect only, an absolute attribution would also seem to follow, and where it is not easy to see which of the attributes can be properly assigned. An instance of this occurs when both the opposite attributes belong similarly ; for then it is generally held that it must be conceded that either both or neither can be predicated absolutely ; for example, if something is half white and half black, is it white or black ?

Other fallacies arise because no definition has been given of what a syllogism is and what a refutation, and there is some defect in their definition. For a refutation is a contradiction of one and the same predicate, not of a name but of a thing, and not of a synonymous name but of an identical name, based on the given premisses and following necessarily from them (the original point at issue not being included) in the same respect, relation, manner and time. A false statement about something also occurs in the same manner. Some people, however, appear to refute, omitting some of the above-named points, showing, for example, that the same thing is double and not double, because two is the double of one but not the double of three. Or, they show that if the same thing is double and not double of the same thing, yet it is not double in the same respect ; for it is double in length but not double in breadth. Or, if it is double and not double of the same thing and in the same respect and manner, yet it is not so at the same time ; and so there is only an apparent refutation. One might, indeed, force this fallacy also into the category of those connected with language.

(3) *Ignoratio elenchi.*

Fallacies connected with the assumption of the

(4) *Petitio principii.*

167 a

οὕτως καὶ τοσαυταχῶς ὁσαχῶς ἐνδέχεται τὸ ἐξ ἀρχῆς αἰτεῖσθαι, φαίνονται δ' ἐλέγχειν διὰ τὸ μὴ δύνασθαι συνορᾶν τὸ ταῦτόν καὶ τὸ ἕτερον.

167 b

Ὁ δὲ παρὰ τὸ ἐπόμενον ἔλεγχος διὰ τὸ οἶεσθαι ἀντιστρέφειν τὴν ἀκολουθήσιν. ὅταν γὰρ τοῦδε ὄντος ἐξ ἀνάγκης τοδὶ ᾗ, καὶ τοῦδε ὄντος οἶονται καὶ θάτερον εἶναι ἐξ ἀνάγκης. ὅθεν καὶ αἱ περὶ 5 τὴν δόξαν ἐκ τῆς αἰσθήσεως ἀπάται γίνονται. πολλάκις γὰρ τὴν χολὴν μέλι ὑπέλαβον διὰ τὸ ἔπεσθαι τὸ ξανθὸν χρῶμα τῷ μέλιτι· καὶ ἐπεὶ συμβαίνει τὴν γῆν ὕσαντος γίνεσθαι διάβροχον, καὶ ᾗ διάβροχος, ὑπολαμβάνομεν ὕσαι. τὸ δ' οὐκ ἀναγκαῖον. ἔν τε τοῖς ῥητορικοῖς αἱ κατὰ τὸ σημείον ἀποδείξεις ἐκ τῶν ἐπομένων εἰσίν. βουλό- 10 μενοι γὰρ δεῖξαι ὅτι μοιχός, τὸ ἐπόμενον ἔλαβον, ὅτι καλλωπιστῆς ἢ ὅτι νύκτωρ ὀράται πλανώμενος. πολλοῖς δὲ ταῦτα μὲν ὑπάρχει, τὸ δὲ κατηγορούμενον οὐχ ὑπάρχει. ὁμοίως δὲ καὶ ἐν τοῖς συλλογιστικοῖς, οἷον ὁ Μελίσσου λόγος ὅτι ἄπειρον τὸ ἅπαν, λαβὼν τὸ μὲν ἅπαν ἀγέννητον (ἐκ γὰρ μὴ 15 ὄντος οὐδὲν ἂν γενέσθαι), τὸ δὲ γενόμενον ἐξ ἀρχῆς γενέσθαι. εἰ μὴ οὖν γέγονεν, ἀρχὴν οὐκ ἔχει τὸ πᾶν, ὥστ' ἄπειρον. οὐκ ἀνάγκη δὲ τοῦτο συμβαίνειν· οὐ γὰρ εἰ τὸ γενόμενον ἅπαν ἀρχὴν ἔχει, καὶ εἴ τι ἀρχὴν ἔχει, γέγονεν, ὥσπερ οὐδ' εἰ ὁ 20 πυρέττων θερμός, καὶ τὸν θερμὸν ἀνάγκη πυρέττειν.

ON SOPHISTICAL REFUTATIONS, v

original point to be proved arise in the same manner and in the same number of ways as it is possible to beg the original point ; they have an appearance of achieving a refutation because men fail to perceive at the same time what is the same and what is different.

The refutation connected with the consequent is ^{(5) The consequent.} due to the idea that consequence is convertible. For whenever, if A is, B necessarily is, men also fancy that, if B is, A necessarily is. It is from this source that deceptions connected with opinion based on sense-perception arise. For men often take gall for honey because a yellow colour accompanies honey ; and since it happens that the earth becomes drenched when it has rained, if it is drenched, we think that it has rained, though this is not necessarily true. In rhetorical arguments proofs from signs are founded on consequences ; for, when men wish to prove that a man is an adulterer, they seize upon the consequence of that character, namely, that the man dresses himself elaborately or is seen wandering abroad at night—facts that are true of many people, while the accusation is not true. So, too, in dialectical reasonings ; for example, the argument of Melissus that the universe is infinite assumes that the universe has not come into being (for nothing could come into being from what does not exist) and that everything which has come into being has come from a beginning ; if, therefore, the universe has not come into being, it has no beginning and therefore is infinite. But this does not necessarily follow ; for even if what has come into being always has a beginning, anything that has a beginning need not have come to be, any more than it follows that a man who is hot must be in a fever because a man who is in a fever is hot.

Ὁ δὲ παρὰ τὸ μὴ αἷτιον ὡς αἷτιον, ὅταν προσ-
 ληφθῇ τὸ ἀναίτιον ὡς παρ' ἐκείνο γινομένου τοῦ
 ἐλέγχου. συμβαίνει δὲ τὸ τοιοῦτον ἐν τοῖς εἰς τὸ
 ἀδύνατον συλλογισμοῖς· ἐν τούτοις γὰρ ἀναγκαῖον
 25 ἀναιρεῖν τι τῶν κειμένων. ἐὰν οὖν ἐγκαταριθμηθῇ
 ἐν τοῖς ἀναγκαίοις ἐρωτήμασι πρὸς τὸ συμβαῖνον
 ἀδύνατον, δόξει παρὰ τοῦτο γίνεσθαι πολλάκις ὁ
 ἔλεγχος, οἷον ὅτι οὐκ ἔστι ψυχὴ καὶ ζωὴ ταυτόν·
 εἰ γὰρ φθορᾶ γένεσις ἐναντίον, καὶ τῇ τινὶ φθορᾶ
 ἔσται τις γένεσις ἐναντίον· ὁ δὲ θάνατος φθορά τις
 30 καὶ ἐναντίον ζωῇ, ὥστε γένεσις ἢ ζωὴ καὶ τὸ ζῆν
 γίνεσθαι· τοῦτο δ' ἀδύνατον· οὐκ ἄρα ταυτόν ἢ
 ψυχὴ καὶ ἢ ζωή. οὐ δὴ συλλελόγισται· συμβαίνει
 γάρ, καὶ μὴ τις ταὐτὸ φῇ τὴν ζωὴν τῇ ψυχῇ, τὸ
 ἀδύνατον, ἀλλὰ μόνον ἐναντίον ζωὴν μὲν θανάτῳ
 ὄντι φθορᾶ, φθορᾶ δὲ γένεσιν. ἀσυλλόγιστοι μὲν
 35 οὖν ἀπλῶς οὐκ εἰσὶν οἱ τοιοῦτοι λόγοι, πρὸς δὲ τὸ
 προκείμενον ἀσυλλόγιστοι. καὶ λανθάνει πολλάκις
 οὐχ ἡττον αὐτοὺς τοὺς ἐρωτῶντας τὸ τοιοῦτον.

Οἱ μὲν οὖν παρὰ τὸ ἐπόμενον καὶ παρὰ τὸ μὴ
 αἷτιον λόγοι τοιοῦτοί εἰσιν· οἱ δὲ παρὰ τὸ τὰ δύο
 ἐρωτήματα ἐν ποιεῖν, ὅταν λανθάνῃ πλείω ὄντα καὶ
 168 a ὡς ἑνὸς ὄντος ἀποδοθῇ ἀπόκρισις μία. ἐπ' ἐνίων
 μὲν οὖν ῥᾶδιον ἰδεῖν ὅτι πλείω καὶ ὅτι οὐ δοτέον

ON SOPHISTICAL REFUTATIONS, v

The refutation connected with taking as a cause what is not a cause, occurs when that which is not a cause is foisted into the argument as though the refutation were due to it. Such a case occurs in reasonings leading up to an impossibility ; for in these one is bound to destroy one of the premisses. If, therefore, what is not a cause is enumerated among the questions which are necessary for the production of the resultant impossibility, the refutation will often seem to come about as the result of it ; for example, in the argument that ' soul ' and ' life ' are not identical. For if coming-into-being is contrary to perishing, then a particular kind of coming-into-being will be contrary to a particular kind of perishing; now death is a particular kind of perishing and contrary to life ; life, therefore, is a coming-into-being and to live is to come-into-being. But this is impossible ; and so the soul and life are not identical. But this conclusion is not the result of reasoning ; for the impossibility occurs even if one does not assert that life is identical with the soul but merely says that life is contrary to death, which is a perishing, and that coming-into-being is contrary to perishing. Such arguments are not absolutely inconclusive but only inconclusive as regards the point at issue, and the questioners themselves are often equally unconscious of such a state of affairs.

Such, then, are the arguments connected with the consequent and the falsely imputed cause. Those which are connected with the union of two questions in one occur, when it is not noticed that they are more than one and one answer is given as though there was only one question. Sometimes it is easy to see that there is more than one question and

(6) Mis-taken cause.

(7) Plurality of questions.

ἀπόκρισιν, οἶον πότερον ἢ γῆ θάλαττά ἐστιν ἢ ὁ οὐρανός; ἐπ' ἐνίων δ' ἦττον, καὶ ὡς ἐνὸς ὄντος ἢ ὁμολογοῦσι τῷ μὴ ἀποκρίνεσθαι τὸ ἐρωτώμενον, 5 ἢ ἐλέγχεσθαι φαίνονται, οἶον ἄρ' οὗτος καὶ οὗτός ἐστιν ἄνθρωπος; ὥστ' ἂν τις τύπτῃ τοῦτον καὶ τοῦτον, ἄνθρωπον ἄλλ' οὐκ ἀνθρώπους τυπτῇσει. ἢ πάλιν, ὦν τὰ μὲν ἐστιν ἀγαθὰ τὰ δ' οὐκ ἀγαθὰ, πάντα ἀγαθὰ ἢ οὐκ ἀγαθὰ; ὁπότερον γὰρ ἂν φῇ, ἔστι μὲν ὡς ἔλεγχον ἢ ψεῦδος φαινόμενον δόξειεν 10 ἂν ποιεῖν· τὸ γὰρ φάναι τῶν μὴ ἀγαθῶν τι εἶναι ἀγαθὸν ἢ τῶν ἀγαθῶν μὴ ἀγαθὸν ψεῦδος. ὅτε δὲ προσληφθέντων τινῶν καὶ ἔλεγχος γίνοιτο ἀληθινός, οἶον εἴ τις δοίῃ ὁμοίως ἐν καὶ πολλὰ λέγεσθαι λευκὰ καὶ γυμνὰ καὶ τυφλά. εἰ γὰρ τυφλὸν τὸ μὴ ἔχον ὄψιν πεφυκὸς δ' ἔχειν, καὶ τυφλὰ ἔσται 15 τὰ μὴ ἔχοντα ὄψιν πεφυκότα δ' ἔχειν. ὅταν οὖν τὸ μὲν ἔχῃ τὸ δὲ μὴ ἔχῃ, τὰ ἄμφω ἔσται ἢ ὁρῶντα ἢ τυφλά· ὅπερ ἀδύνατον.

VI. Ἡ δὲ οὕτως διαιρετέον τοὺς φαινομένους συλλογισμοὺς καὶ ἐλέγχους, ἢ πάντας ἀνακτέον εἰς τὴν τοῦ ἐλέγχου ἄγνοιαν, ἀρχὴν ταύτην ποιη- 20 σαμένους· ἔστι γὰρ ἅπαντας ἀναλῦσαι τοὺς λεχθέν-
τας τρόπους εἰς τὸν τοῦ ἐλέγχου διορισμόν. πρῶτον μὲν εἰ ἀσυλλόγιστοι· δεῖ γὰρ ἐκ τῶν κειμένων συμβαίνειν τὸ συμπέρασμα, ὥστε λέγειν ἐξ ἀνάγκης ἀλλὰ μὴ φαίνεσθαι. ἔπειτα καὶ κατὰ τὰ μέρη τοῦ

that an answer should not be given, for example, when it is asked 'Is the earth sea, or is the sky?' Sometimes, however, it is less easy, and thinking that there is only one question, people either give in by not answering the question or suffer an apparent refutation. For example, 'Is A and is B a man?' 'If so, if a man strikes A and B, he will strike a man, not men?' Or again, 'Where part is good and part evil, is the whole good or evil?' Either answer might possibly seem to involve an apparent refutation or false statement; for to say that something is good when it is not good or not good when it is good is a false statement. Sometimes, however, if certain premisses are added, there might be a genuine refutation. For example, if one agrees that a single thing and a number of things are alike called 'white' or 'naked' or 'blind.' For if 'blind' is used of something which does not possess sight though it is its nature to possess it, it will also describe a number of things which do not possess sight though it is their nature to possess it. When, therefore, one thing has sight while another has not, they will either both be able to see or both be blind; which is impossible.

VI. We must either divide apparent reasonings and refutations in the manner just described or else refer them all to a false conception of refutation, making this our basis; for it is possible to resolve all the kinds of fallacy which we have mentioned into violations of the definition of refutation. Firstly, we must see if they are inconclusive; for the conclusion ought to follow from the premisses laid down, so that we state it of necessity and do not merely appear to do so. Next, we ought to see if they accord with the

[Note (a).
The above fallacies can all be represented as forms of a single fallacy, *i.e.* *ignoratio elenchi*.]

διορισμοῦ. τῶν μὲν γὰρ ἐν τῇ λέξει οἱ μὲν εἰσι
 25 παρὰ τὸ διττόν, οἷον ἢ τε ὁμωνυμία καὶ ὁ λόγος
 καὶ ἡ ὁμοιοσχημοσύνη (σύνηθες γὰρ τὸ πάντα ὡς
 τόδε τι σημαίνειν), ἡ δὲ σύνθεσις καὶ διαίρεσις καὶ
 προσωδία τῷ μὴ τὸν αὐτὸν εἶναι τὸν λόγον ἢ
 τοῦνομα διαφέρον. ἔδει δὲ καὶ τοῦτο, καθάπερ
 καὶ τὸ πρᾶγμα, ταῦτόν, εἰ μέλλει ἔλεγχος ἢ συλ-
 30 λογισμὸς ἔσεσθαι, οἷον εἰ λώπιον, μὴ ἱμάτιον συλ-
 λογίσασθαι ἀλλὰ λώπιον. ἀληθὲς μὲν γὰρ κακέينو,
 ἀλλ' οὐ συλλελόγισται, ἀλλ' ἔτι ἐρωτήματος δεῖ,
 ὅτι ταῦτόν σημαίνει, πρὸς τὸν ζητοῦντα τὸ διὰ τί.

Οἱ δὲ παρὰ τὸ συμβεβηκὸς ὁρισθέντος τοῦ συλ-
 35 λογισμοῦ φανεροὶ γίνονται. τὸν αὐτὸν γὰρ ὁρισμὸν
 δεῖ καὶ τοῦ ἐλέγχου γίνεσθαι, πλὴν προσκεῖσθαι
 τὴν ἀντίφασιν· ὁ γὰρ ἔλεγχος συλλογισμὸς ἀντι-
 φάσεως. εἰ οὖν μὴ ἐστὶ συλλογισμὸς τοῦ συμ-
 βεβηκότος, οὐ γίνεται ἔλεγχος. οὐ γὰρ εἰ τούτων
 ὄντων ἀνάγκη τόδ' εἶναι, τοῦτο δ' ἐστὶ λευκόν,
 40 ἀνάγκη λευκὸν εἶναι διὰ τὸν συλλογισμόν. οὐδ'
 168 b εἰ τὸ τρίγωνον δυοῖν ὀρθαῖν ἴσας ἔχει, συμβέβηκε
 δ' αὐτῷ σχήματι εἶναι ἢ πρώτῳ ἢ ἀρχῇ, ὅτι
 σχῆμα ἢ ἀρχὴ ἢ πρῶτον τοῦτο. οὐ γὰρ ἡ σχῆμα
 οὐδ' ἡ πρῶτον, ἀλλ' ἡ τρίγωνον, ἢ ἀπόδειξις.
 ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων. ὥστ' εἰ ὁ ἔλεγχος
 5 συλλογισμὸς τις, οὐκ ἂν εἴη ὁ κατὰ συμβεβηκὸς
 ἔλεγχος. ἀλλὰ παρὰ τοῦτο καὶ οἱ τεχνῖται καὶ
 36

ON SOPHISTICAL REFUTATIONS, VI

remaining parts of the definition. For of the fallacies connected with language, some are due to a double meaning, for example equivocation and ambiguous phraseology and similarity of formation (for it is customary to indicate everything as a particular substance), whereas composition, division and accentuation are due to the phrase not being the same or the name different. For the name also, like the thing signified, ought to be the same, if refutation or reasoning is to result. For example, if the subject is a mantle, you should come to a conclusion about a mantle, not about a cloak; for the latter conclusion is also a true one, but the reasoning is not complete, and a further question must be asked to prove that words mean the same thing, if the answerer asks how you have refuted him.

Illustrations
from fallacies de-
pending
upon
(1) diction.

Fallacies connected with Accident become obvious when 'proof' has been defined. For the same definition ought to be true also of refutation, except that 'the contradictory' is added; for refutation is a proof of the contradictory. If, therefore, there is no proof of the accident, no refutation takes place. For if, when A and B are, C is, and C is white, it does not necessarily follow that it is white because of the syllogism. And again, if the triangle has its angles equal to two right angles, and it happens to be a figure, element or principle, it does not necessarily follow that because it is a figure, element or principle it has this character; for the demonstration is concerned with it not *qua* figure or *qua* element but *qua* triangle. And so likewise with the other instances. Thus, if refutation is a kind of proof, an argument depending on an accident could not be a refutation. Yet it is along these lines that specialists and men of

(2) Acci-
dent.

ὅλως οἱ ἐπιστήμονες ὑπὸ τῶν ἀνεπιστημόνων ἐλέγχονται· κατὰ συμβεβηκὸς γὰρ ποιοῦνται τοὺς συλλογισμοὺς πρὸς τοὺς εἰδότας. οἱ δ' οὐ δυνάμενοι διαιρεῖν ἢ ἐρωτώμενοι διδόασιν ἢ οὐ δόντες
 10 οἷονται δεδωκέναι.

Οἱ δὲ παρὰ τὸ πῇ καὶ ἀπλῶς, ὅτι οὐ τοῦ αὐτοῦ ἢ κατάφασις καὶ ἢ ἀπόφασις. τοῦ γὰρ πῇ λευκοῦ τὸ πῇ οὐ λευκόν, τοῦ δ' ἀπλῶς λευκοῦ τὸ ἀπλῶς οὐ λευκὸν ἀπόφασις. εἰ οὖν δόντος πῇ εἶναι λευκὸν
 15 ὥς ἀπλῶς εἰρημένου λαμβάνει, οὐ ποιεῖ ἔλεγχον, φαίνεται δὲ διὰ τὴν ἄγνοιαν τοῦ τί ἐστίν ἔλεγχος.

Φανερώτατοι δὲ πάντων οἱ πρότερον λεχθέντες παρὰ τὸν τοῦ ἐλέγχου διορισμόν· διὸ καὶ προσηγορεύθησαν οὕτως· παρὰ γὰρ τοῦ λόγου τὴν
 20 ἔλλειψιν ἢ φαντασία γίνεται, καὶ διαιρουμένοις οὕτως κοινὸν ἐπὶ πᾶσι τούτοις θετέον τὴν τοῦ λόγου ἔλλειψιν.

Οἷ τε παρὰ τὸ λαμβάνειν τὸ ἐν ἀρχῇ καὶ τὸ ἀναίτιον ὥς αἷτιον τιθέναι δῆλοι διὰ τοῦ ὁρισμοῦ. δεῖ γὰρ τὸ συμπέρασμα τῷ ταῦτ' εἶναι¹ συμβαίνειν,
 25 ὅπερ οὐκ ἦν ἐν τοῖς ἀναιτίοις· καὶ πάλιν μὴ ἀριθμουμένου τοῦ ἐξ ἀρχῆς, ὅπερ οὐκ ἔχουσιν οἱ παρὰ τὴν αἷτησιν τοῦ ἐν ἀρχῇ.

Οἱ δὲ παρὰ τὸ ἐπόμενον μέρος εἰσὶ τοῦ συμβεβηκότος· τὸ γὰρ ἐπόμενον συμβέβηκε, διαφέρει δὲ

¹ Omitting αἷτια τοῦ after εἶναι with ABC.

^a 167 a 21 ff.

^b παραλογισμοί from παρὰ and λόγος in the sense of 'definition.'

ON SOPHISTICAL REFUTATIONS, VI

science in general are refuted by the unscientific ; for they argue with the men of science with reasonings based on accident, and the latter, being incapable of making distinctions, either give in when questioned, or think that they have done so when they have not.

Fallacies which depend on whether a statement is made in a limited sense or absolutely occur because the affirmation and denial are not of the same thing. For 'not partly white' is the negation of 'partly white,' and 'not absolutely white' of 'absolutely white.' If, then, one takes the admission that something is partially white to mean that it is absolutely white, he does not cause a refutation but only seems to do so owing to ignorance of what a refutation is.

(3) The confusion of absolute and qualified statements.

The clearest fallacies of all are those already mentioned ^a as connected with the definition of refutation (hence also their name) ^b; for the semblance of a refutation is due to the defect in the definition, and, if we distinguish fallacies in this way, we must put down 'defect of definition' as common to all these cases.

(4) Defective definition.

Fallacies due to assuming the original point and stating as a cause what is not a cause are clearly exposed by means of the definition. For the conclusion ought to follow because this and that is so, which is not the case when the alleged cause is not the cause ; and, again, the conclusion should follow without the original point being included, which is not true of arguments based on the begging of the original point.

(5) *Petito principii.*

Fallacies connected with the consequent form part of those due to accident ; for the consequent is an accident but differs from the accident because the

(6) The consequent.

168 b

τοῦ συμβεβηκότος, ὅτι τὸ μὲν συμβεβηκὸς ἔστιν
 30 ἐφ' ἐνὸς μόνου λαβεῖν, οἷον ταῦτ' εἶναι τὸ ξανθὸν
 καὶ μέλι καὶ τὸ λευκὸν καὶ κύκνον, τὸ δὲ παρεπό-
 μενον αἰεὶ ἐν πλείοσιν· τὰ γὰρ ἐνὶ ταύτῳ ταῦτ' αὖ
 καὶ ἀλλήλοις ἀξιουμένον εἶναι ταῦτά· διὸ γίνεται
 παρὰ τὸ ἐπόμενον ἔλεγχος. ἔστι δ' οὐ πάντως
 ἀληθές, οἷον ἂν ἡ λευκὸν κατὰ συμβεβηκός· καὶ
 35 γὰρ ἡ χιών καὶ ὁ κύκνος τῷ λευκῷ ταυτόν. ἡ
 πάλιν, ὡς ἐν τῷ Μελίσσου λόγῳ, τὸ αὐτὸ εἶναι
 λαμβάνει τὸ γεγονέναι καὶ ἀρχὴν ἔχειν, ἡ τὸ ἴσα¹
 γίνεσθαι καὶ ταῦτ' ὁ μέγεθος λαμβάνειν. ὅτι γὰρ
 τὸ γεγονὸς ἔχει ἀρχήν, καὶ τὸ ἔχον ἀρχὴν γεγονέναι
 ἀξιοῖ, ὡς ἄμφω ταῦτ' ὄντα τῷ ἀρχὴν ἔχειν, τό
 40 τε γεγονὸς καὶ τὸ πεπερασμένον.² ὁμοίως δὲ καὶ
 169 a ἐπὶ τῶν ἴσων γινομένων εἰς τὰ τὸ αὐτὸ μέγεθος
 καὶ ἐν λαμβάνοντα ἴσα γίνεται, καὶ τὰ ἴσα γινόμενα
 ἐν μέγεθος λαμβάνει. ὥστε τὸ ἐπόμενον λαμβάνει.
 ἐπεὶ οὖν ὁ παρὰ τὸ συμβεβηκὸς ἔλεγχος ἐν τῇ
 ἀγνοίᾳ τοῦ ἐλέγχου, φανερόν ὅτι καὶ ὁ παρὰ τὸ
 5 ἐπόμενον. ἐπισκεπτέον δὲ τοῦτο καὶ ἄλλως.

Οἱ δὲ παρὰ τὰ πλείω ἐρωτήματα ἐν ποιεῖν ἐν
 τῷ μὴ διαρθροῦν ἡμᾶς ἢ μὴ διαιρεῖν τὸν τῆς προ-
 τάσεως λόγον. ἢ γὰρ πρότασις ἔστιν ἐν καθ' ἐνός.

¹ Reading ἴσα for ἴσοις.

² Bekker misprints πεπερασμένον as πεπερασμένων.

^a But it does not follow that because snow is white and swan is white, therefore snow is swan.

^b Cf. 167 b 13 f.

^c Cf. 179 a 26 ff., 181 a 22 ff.

accident can be secured in the case of a single thing by itself, for example, a yellow thing and honey are identical, and so is a white thing and a swan, whereas the consequent always exists in more than one thing; for we claim that things which are the same as one and the same thing are the same as one another; and this is how refutation proceeds when the consequent is involved. It is not, however, always true, for example, in the case of accidental whiteness; for both 'snow' and 'swan' are the same in respect of whiteness.^a Or again, as in the argument of Melissus,^b someone takes 'to have come into being' and 'to have a beginning' as the same thing, and 'to become equal' as the same thing as 'to take on the same magnitude.' For because what has come into being has a beginning, he claims also that what has a beginning has come into being, on the ground that 'having come into being' and 'being finite' are both the same thing, because both have a beginning. Similarly, too, in the case of things which become equal, he assumes that, if things which take on one and the same magnitude become equal, then also things which become equal take on the same magnitude. In doing so he is assuming the consequent. Since, then, the refutation where accident is concerned depends on ignorance of the nature of refutation, so also, it is clear, does the refutation where the consequent is concerned. But we must examine this question from other points of view also.^c

Fallacies connected with the union of several questions in one are due to our failure to differentiate or distinguish the definition of the term 'proposition.' For a proposition is a single predication about a single subject. For the same definition applies

(7) The union of several questions in one.

ὁ γὰρ αὐτὸς ὅρος ἑνὸς μόνου καὶ ἀπλῶς τοῦ πράγ-
 10 ματος, οἷον ἀνθρώπου καὶ ἑνὸς μόνου ἀνθρώπου·
 ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων. εἰ οὖν μία πρότασις
 ἢ ἓν καθ' ἑνὸς ἀξιούσα, καὶ ἀπλῶς ἔσται πρότασις
 ἢ τοιαύτη ἐρώτησις. ἐπεὶ δ' ὁ συλλογισμὸς ἐκ
 προτάσεων, ὁ δ' ἔλεγχος συλλογισμὸς, καὶ ὁ ἔλεγ-
 15 χος ἔσται ἐκ προτάσεων. εἰ οὖν ἡ πρότασις ἓν
 καθ' ἑνός, φανερόν ὅτι καὶ οὗτος ἐν τῇ τοῦ ἐλέγχου
 ἀγνοίᾳ· φαίνεται γὰρ εἶναι πρότασις ἢ οὐκ οὖσα
 πρότασις. εἰ μὲν οὖν δέδωκεν ἀπόκρισιν ὡς πρὸς
 μίαν ἐρώτησιν, ἔσται ἔλεγχος, εἰ δὲ μὴ δέδωκεν
 ἀλλὰ φαίνεται, φαινόμενος ἔλεγχος. ὥστε πάντες
 οἱ τρόποι¹ πίπτουσιν εἰς τὴν τοῦ ἐλέγχου ἀγνοίαν,
 20 οἱ μὲν οὖν παρὰ τὴν λέξιν, ὅτι φαινομένη ἢ²
 ἀντίφασις, ὅπερ ἦν ἴδιον τοῦ ἐλέγχου, οἱ δ' ἄλλοι
 παρὰ τὸν τοῦ συλλογισμοῦ ὅρον.

VII. Ἡ δ' ἀπάτη γίνεται τῶν μὲν παρὰ τὴν
 ὁμωνυμίαν καὶ τὸν λόγον τῷ μὴ δύνασθαι διαιρεῖν
 τὸ πολλαχῶς λεγόμενον (ἔνια γὰρ οὐκ εὔπορον
 25 διελεῖν, οἷον τὸ ἓν καὶ τὸ ὄν καὶ τὸ ταυτόν), τῶν
 δὲ παρὰ σύνθεσιν καὶ διαίρεσιν τῷ μηδὲν οἶεσθαι
 διαφέρειν συντιθέμενον ἢ διαιρούμενον τὸν λόγον,
 καθάπερ ἐπὶ τῶν πλείστων. ὁμοίως δὲ καὶ τῶν
 παρὰ τὴν προσωδίαν· οὐ γὰρ ἄλλο δοκεῖ σημαίνειν
 ἀνιέμενος καὶ ἐπιτεινόμενος ὁ λόγος, ἐπ' οὐδενὸς

¹ Reading *τρόποι* for *τόποι* with Michael Ephesius.

² Adding *ἢ* with Wallies.

ON SOPHISTICAL REFUTATIONS, VI-VII

to 'one single thing' and to 'the thing' simply; the definition, for example, of 'man' and of 'one single man' is the same, and so, too, with the other instances. If, therefore, a 'single proposition' is one which claims a single predicate for a single subject, a 'proposition,' simply, will also be a question of this kind. And since reasoning is based on propositions, and refutation is a process of reasoning, refutation will also be based on propositions. If, therefore, a proposition is a single predication about a single thing, clearly this fallacy also depends on ignorance of the nature of refutation; for what is not a proposition appears to be one. If, therefore, a man has given an answer as though to a single question, there will be a refutation, but if he has not given it but only appears to have done so, there will be only an apparent refutation. Thus all the kinds of fallacy fall under the heading of ignorance of the nature of refutation—those connected with language because the contradiction, which is a particular characteristic of refutation, is only apparent, and the rest because of the definition of reasoning.

VII. In fallacies connected with verbal equivocation and ambiguous phrases the deception arises from the inability to distinguish the various meanings of a term (for there are some which it is not easy to distinguish, for example, the meanings of 'unity,' 'being' and 'identity'). In fallacies connected with combination and disjunction the deception is due to the supposition that it makes no difference whether the term is combined or disjoined, as indeed is generally the case. So, too, in those connected with accentuation; for it does not seem ever, or seems very seldom, to alter the significance of the word whether it is pronounced

[Note (β). All the above fallacies arise from confused thinking and the inability to make distinctions.]

169 a

30 ἢ οὐκ ἐπὶ πολλῶν. τῶν δὲ παρὰ τὸ σχῆμα διὰ
 τὴν ὁμοιότητα τῆς λέξεως. χαλεπὸν γὰρ διελεῖν
 ποῖα ὡσαύτως καὶ ποῖα ὡς ἑτέρως λέγεται· σχεδὸν
 γὰρ ὁ τοῦτο δυνάμενος ποιεῖν ἐγγύς ἐστι τοῦ
 θεωρεῖν τὰληθές. μάλιστα δ' ἐπισπᾶται¹ συνεπι-
 35 νεύειν, ὅτι πᾶν τὸ κατηγορούμενόν τινος ὑπο-
 λαμβάνομεν τόδε τι καὶ ὡς ἐν ὑπακούομεν· τῷ γὰρ
 ἐνὶ καὶ τῇ οὐσίᾳ μάλιστα δοκεῖ παρέπεσθαι τὸ
 τόδε τι καὶ τὸ ὄν. διὸ καὶ τῶν παρὰ τὴν λέξιν
 οὗτος ὁ τρόπος θετέος, πρῶτον μὲν ὅτι μᾶλλον ἢ
 ἀπάτη γίνεται μετ' ἄλλων σκοπουμένοις ἢ καθ'
 αὐτούς (ἢ μὲν γὰρ μετ' ἄλλου σκέψις διὰ λόγων,
 40 ἢ δὲ καθ' αὐτὸν οὐχ ἦττον δι' αὐτοῦ τοῦ πράγ-
 169 b ματος), εἶτα καὶ καθ' αὐτὸν ἀπαταᾶσθαι συμβαίνει,
 ὅταν ἐπὶ τοῦ λόγου ποιῇται τὴν σκέψιν· ἔτι ἢ μὲν
 ἀπάτη ἐκ τῆς ὁμοιότητος, ἢ δ' ὁμοιότης ἐκ τῆς
 λέξεως. τῶν δὲ παρὰ τὸ συμβεβηκὸς διὰ τὸ μὴ
 δύνασθαι διακρίνειν τὸ ταῦτόν καὶ τὸ ἕτερον καὶ
 5 ἐν καὶ πολλά, μηδὲ τοῖς ποίοις τῶν κατηγορημάτων
 πάντα ταῦτά καὶ τῷ πράγματι συμβέβηκεν. ὁμοίως
 δὲ καὶ τῶν παρὰ τὸ ἐπόμενον· μέρος γάρ τι τοῦ
 συμβεβηκότος τὸ ἐπόμενον. ἔτι καὶ ἐπὶ πολλῶν
 φαίνεται καὶ ἀξιοῦνται οὕτως, εἰ τόδε ἀπὸ τοῦδε
 μὴ χωρίζεται, μηδ' ἀπὸ θατέρου χωρίζεσθαι θά-
 10 τερον. τῶν δὲ παρὰ τὴν ἔλλειψιν τοῦ λόγου καὶ

¹ Reading with Poste ἐπισπᾶται for ἐπίσταται.

with a lower or a higher pitch. In fallacies connected with the form of expression the deception is due to similarity of language ; for it is difficult to distinguish what sort of things belong to the same and what to different categories ; for he who can do this very nearly approaches a vision of the truth. What in particular seduces us into giving our assent to the fallacy is the fact that we suppose that every predicate of something is an individual thing and it presents itself to our ears as a single thing ; for it is to the one and to substance that ' individuality ' and ' being ' are generally held most truly to be attached. On this account also this kind of fallacy must be classed among those connected with language ; firstly, because the deception occurs more commonly when we are inquiring with others than by ourselves (for an inquiry with someone else is carried on by means of words, whereas in our own minds it is carried on quite as much by means of the thing itself) ; secondly, because, even in solitary inquiry, a man is apt to be deceived when he carries on his inquiry by means of words ; and, thirdly, the deception arises from the similarity, and the similarity arises from the language. In fallacies connected with accident the deception is due to inability to distinguish the identical and the different, the one and the many, and what kinds of predicates have all the same accidents as their subject. So, too, in fallacies connected with the consequent ; for the consequent is a branch of the accident. Furthermore, in many cases it appears to be true and is treated as axiomatic that, if A is inseparable from B, then also B is inseparable from A. In fallacies connected with the defect in the definition of refutation and with the distinction

τῶν παρὰ τὸ πῆ καὶ ἀπλῶς ἐν τῷ παρὰ μικρὸν ἢ ἀπάτῃ· ὥς γὰρ οὐδὲν προσσημαῖνον τὸ τί ἢ πῆ ἢ πῶς ἢ τὸ νῦν καθόλου συγχωροῦμεν. ὁμοίως δὲ καὶ ἐπὶ τῶν τὸ ἐν ἀρχῇ λαμβανόντων καὶ τῶν ἀναιτίων, καὶ ὅσοι τὰ πλείω ἐρωτήματα ὥς ἐν
 15 ποιοῦσιν· ἐν ἅπασι γὰρ ἢ ἀπάτῃ διὰ τὸ παρὰ μικρὸν· οὐ γὰρ διακριβοῦμεν οὔτε τῆς προτάσεως οὔτε τοῦ συλλογισμοῦ τὸν ὅρον διὰ τὴν εἰρημένην αἰτίαν.

VIII. Ἐπεὶ δ' ἔχομεν παρ' ὅσα γίνονται οἱ φαινόμενοι συλλογισμοί, ἔχομεν καὶ παρ' ὅποσα οἱ
 20 σοφιστικοὶ γένοιντ' ἂν συλλογισμοὶ καὶ ἔλεγχοι. λέγω δὲ σοφιστικὸν ἔλεγχον καὶ συλλογισμὸν οὐ μόνον τὸν φαινόμενον συλλογισμὸν ἢ ἔλεγχον, μὴ ὄντα δέ, ἀλλὰ καὶ τὸν ὄντα μὲν, φαινόμενον δὲ οἰκεῖον τοῦ πράγματος. εἰσὶ δ' οὗτοι οἱ μὴ κατὰ τὸ πρᾶγμα ἐλέγχοντες καὶ δεικνύντες ἀγνοοῦντας,
 25 ὅπερ ἦν τῆς πειραστικῆς. ἔστι δ' ἡ πειραστικὴ μέρος τῆς διαλεκτικῆς· αὕτη δὲ δύναται συλλογίζεσθαι ψεῦδος δι' ἄγνοιαν τοῦ διδόντος τὸν λόγον. οἱ δὲ σοφιστικοὶ ἔλεγχοι, ἂν καὶ συλλογίζωνται τὴν ἀντίφασιν, οὐ ποιοῦσι δῆλον εἰ ἀγνοεῖ· καὶ γὰρ τὸν εἰδότα ἐμποδίζουσι τούτοις τοῖς λόγοις.

30 "Οτι δ' ἔχομεν αὐτοὺς τῇ αὐτῇ μεθόδῳ, δῆλον· παρ' ὅσα γὰρ φαίνεται τοῖς ἀκούουσιν ὥς ἡρωτημένα συλλελογίσθαι, παρὰ ταῦτα κἂν τῷ ἀποκρινομένῳ δόξειεν, ὥστ' ἔσονται συλλογισμοὶ ψευδεῖς διὰ τούτων ἢ πάντων ἢ ἐνίων· ὁ γὰρ μὴ ἐρωτηθεὶς

ON SOPHISTICAL REFUTATIONS, VII-VIII

between a qualified and an absolute statement the deception is due to the minuteness of the difference ; for we regard the qualification of a particular case or respect or manner or time as having no extra significance and concede the universality of the proposition. So, too, when people assume the original point and when the wrong cause is assigned and when several questions are united in one ; for in all these cases the deception is due to the minuteness of the difference ; for we fail accurately to carry out the definition of ' proposition ' and ' reasoning ' from the above-mentioned cause.

VIII. Since we know the various sources from which apparent reasonings arise, we also know those from which sophistical reasonings and refutations would arise. By sophistical refutation and reasoning I mean not only the seeming but unreal reasoning or refutation but also one which, though real, only seems to be, but is not really, germane to the subject in hand. These are those which fail to refute and show up ignorance within the sphere of the subject in hand, and this is the function of examination. Now this is a department of dialectic, but it may reach a false conclusion owing to the ignorance of the person under examination. But sophistical refutations, even if they prove the contradictory of his view, do not make clear whether he is ignorant ; for men try to entrap even the man of scientific knowledge by these arguments.

That we know them by the same method is clear ; for the same reasons which make the hearers think that a conclusion has been reached as a result of questions, would make the answerer think so too, so that there will be false proofs as a result of all or some of these causes ; for what a man thinks he has

(c) *By refutations which, though valid, only appear to be germane to the subject under discussion.*

[Note (a). Sophistical refutations proceed on the same lines as apparent proof.]

169 b

35 οἶεται δεδοκέναι, κἂν ἐρωτηθεῖς θείῃ. πλὴν ἐπὶ
 γέ τινων ἅμα συμβαίνει προσερωτᾶν τὸ ἐνδεές καὶ
 τὸ ψεῦδος ἐμφανίζειν, οἷον ἐν τοῖς παρὰ τὴν λέξιν
 καὶ τὸν σολοικισμόν. εἰ οὖν οἱ παραλογισμοὶ τῆς
 ἀντιφάσεως παρὰ τὸν φαινόμενον ἔλεγχόν εἰσι, δῆ-
 λον ὅτι παρὰ τοσαῦτα ἂν καὶ τῶν ψευδῶν εἴησαν
 40 συλλογισμοὶ παρ' ὅσα καὶ ὁ φαινόμενος ἔλεγχος.
 170 α ὁ δὲ φαινόμενος παρὰ τὰ μόρια τοῦ ἀληθινοῦ· ἐκά-
 στου γὰρ ἐκλείποντος φανείῃ ἂν ἔλεγχος, οἷον ὁ
 παρὰ τὸ μὴ συμβαῖνον διὰ τὸν λόγον, ὁ εἰς τὸ
 ἀδύνατον καὶ ὁ τὰς δύο ἐρωτήσεις μίαν ποιῶν παρὰ
 τὴν πρότασιν, καὶ ἀντὶ τοῦ καθ' αὐτὸ ὁ παρὰ τὸ
 5 συμβεβηκός, καὶ τὸ τούτου μόριον, ὁ παρὰ τὸ
 ἐπόμενον· ἔτι τὸ μὴ ἐπὶ τοῦ πράγματος ἀλλ' ἐπὶ
 τοῦ λόγου συμβαίνειν· εἴτ' ἀντὶ τοῦ καθόλου τὴν
 ἀντίφασιν καὶ κατὰ ταῦτό καὶ πρὸς ταῦτό καὶ
 ὡσαύτως παρὰ τε τὸ ἐπὶ τι ἢ παρ' ἕκαστον τούτων·
 ἔτι παρὰ τὸ μὴ ἐναριθμουμένου τοῦ ἐν ἀρχῇ τὸ ἐν
 10 ἀρχῇ λαμβάνειν. ὥστ' ἔχοιμεν ἂν παρ' ὅσα γίνονται
 οἱ παραλογισμοί· παρὰ πλείω μὲν γὰρ οὐκ ἂν εἶεν,
 παρὰ δὲ τὰ εἰρημένα ἔσονται πάντες.

Ἔστι δ' ὁ σοφιστικὸς ἔλεγχος οὐχ ἀπλῶς ἔλεγ-
 χος, ἀλλὰ πρὸς τινα· καὶ ὁ συλλογισμὸς ὡσαύτως.

ON SOPHISTICAL REFUTATIONS, VIII

conceded without being questioned, he would grant if he were to be questioned. But of course it sometimes happens that, as soon as we ask the requisite question, we make the falsehood obvious, as happens in verbal fallacies and those due to solecism. If, therefore, false proofs of the contradictory depend on the apparent refutation, it is clear that proofs of false conclusions must be also due to the same number of causes as the apparent refutation. Now the apparent refutation depends on the elements which compose a genuine one ; for, if any one of these is lacking, there would only be an apparent refutation, for example, that which is due to the conclusion not resulting from the argument (the reduction to an impossibility), and that which unites two questions in one and is due to a fault in the proposition, and that which is due to the substitution of an accident for the essence of a thing, and—a subdivision of the last mentioned—that which is due to the consequent ; moreover, there is the case where the result follows in word only and not in reality, and also where, instead of the contradiction being universal and in the same respect, relation and manner, there is a restriction in extent or in connexion with another of these qualifications ; and then again there is the case of the assumption of the original point due to a disregard of the principle of not reckoning it in. Thus we should know the various conditions under which false proofs occur, for there are no further conditions under which they could occur, but they will always result from the above causes.

A sophistical refutation is not an absolute refutation but is relative to some person, and so likewise is a sophistical proof. For unless the refutation which

[Note (β).
A sophistical refutation is not

170 a

- ἂν μὲν γὰρ μὴ λάβῃ ὅ τε παρὰ τὸ ὁμώνυμον ἐν
 15 σημαίνειν καὶ ὁ παρὰ τὴν ὁμοιοσχημοσύνην τὸ
 μόνον τόδε καὶ οἱ ἄλλοι ὡσαύτως, οὔτ' ἔλεγκοι
 οὔτε συλλογισμοὶ ἔσονται, οὔθ' ἀπλῶς οὔτε πρὸς
 τὸν ἐρωτώμενον· ἐὰν δὲ λάβωσι, πρὸς μὲν τὸν
 ἐρωτώμενον ἔσονται, ἀπλῶς δ' οὐκ ἔσονται· οὐ γὰρ
 ἐν σημαῖνον εἰλήφασιν, ἀλλὰ φαινόμενον, καὶ παρὰ
 τοῦδε.
- 20 IX. Παρὰ πόσα δ' ἐλέγχονται οἱ ἐλεγχόμενοι,
 οὐ δεῖ πειρᾶσθαι λαμβάνειν ἄνευ τῆς τῶν ὄντων
 ἐπιστήμης ἀπάντων. τοῦτο δ' οὐδεμιᾶς ἐστὶ τέχ-
 νης· ἄπειροι γὰρ ἴσως αἱ ἐπιστήμαι, ὥστε δηλόν
 ὅτι καὶ αἱ ἀποδείξεις. ἔλεγκοι δ' εἰσὶ καὶ ἀληθεῖς·
 ὅσα γὰρ ἔστιν ἀποδείξαι, ἔστι καὶ ἐλέγξαι τὸν
- 25 θέμενον τὴν ἀντίφασιν τοῦ ἀληθοῦς, οἷον εἰ σύμ-
 μετρον τὴν διάμετρον ἔθηκεν, ἐλέγξειεν ἂν τις τῇ
 ἀποδείξει ὅτι ἀσύμμετρος. ὥστε πάντων δεήσει
 ἐπιστήμονας εἶναι· οἱ μὲν γὰρ ἔσονται παρὰ τὰς
 ἐν γεωμετρίᾳ ἀρχὰς καὶ τὰ τούτων συμπεράσματα,
 οἱ δὲ παρὰ τὰς ἐν ἰατρικῇ, οἱ δὲ παρὰ τὰς τῶν
- 30 ἄλλων ἐπιστημῶν. ἀλλὰ μὴν καὶ οἱ ψευδεῖς ἔλεγκοι
 ὁμοίως ἐν ἀπείροις· καθ' ἐκάστην γὰρ τέχνην ἐστὶ
 ψευδὴς συλλογισμός, οἷον κατὰ γεωμετρίαν ὁ γεω-
 μετρικὸς καὶ κατὰ ἰατρικὴν ὁ ἰατρικὸς. λέγω δὲ
 τὸ κατὰ τὴν τέχνην τὸ κατὰ τὰς ἐκείνης ἀρχάς.
- 35 δηλόν οὖν ὅτι οὐ πάντων τῶν ἐλέγχων ἀλλὰ τῶν

depends on equivocation assumes that the equivocal term has only a single meaning, and unless that which depends on similarity of termination assumes that there is only substance, and so on, neither refutation nor proof will be possible, either absolutely or relatively, to the answerer ; whereas, if they do make these assumptions, they will be possible relatively to the answerer, but not absolutely ; for they have not secured a statement which has a single meaning but only one which appears to be such, and only from a particular person.

absolute
but is
relative
to the
answerer.]

IX. Without a knowledge of everything which exists we ought not to try and grasp the various ways in which the refutation of those who are refuted is brought about. This, however, is not the function of any art ; for the sciences are possibly infinite, and so clearly demonstrations are also infinite. Now there are true as well as false refutations ; for whenever demonstration is possible, it is possible also to refute him who maintains the contradictory of the truth ; for example, if a man maintains that the diagonal of a square is commensurate with its sides, one should refute him by proving that it is incommensurate. So we shall need to have scientific knowledge of everything ; for some refutations will depend on the principles of geometry and their conclusions, others on those of medicine, and others on those of the other sciences. Moreover, false refutations also are among things which are infinite ; for every art has a false proof peculiar to it, geometry a geometrical proof and medicine a medical proof. By 'peculiar to an art' I mean 'in accordance with the principles of that art.' It is clear, then, that we need not grasp the commonplaces of all refutations

[Note (γ). A complete grasp of all refutations is impossible, because they are infinite in number.]

170 ■

παρὰ τὴν διαλεκτικὴν ληπτέον τοὺς τόπους· οὗτοι
 γὰρ κοινοὶ πρὸς ἅπασαν τέχνην καὶ δύναμιν. καὶ
 τὸν μὲν καθ' ἐκάστην ἐπιστήμην ἔλεγχον τοῦ ἐπι-
 στήμονός ἐστι θεωρεῖν, εἴτε μὴ ὧν φαίνεται εἶ τ'
 ἔστι, διὰ τί ἔστι· τὸν δ' ἐκ τῶν κοινῶν καὶ ὑπὸ
 40 μηδεμίαν τέχνην τῶν διαλεκτικῶν. εἰ γὰρ ἔχομεν
 ἐξ ὧν οἱ ἔνδοξοι συλλογισμοὶ περὶ ὁτιοῦν, ἔχομεν
 170 b ἐξ ὧν οἱ ἔλεγχοι· ὁ γὰρ ἔλεγχός ἐστιν ἀντιφάσεως
 συλλογισμός, ὥστ' ἢ εἰς ἢ δύο συλλογισμοὶ ἀντι-
 φάσεως ἔλεγχός ἐστιν. ἔχομεν ἄρα παρ' ὅποσα
 πάντες εἰσὶν οἱ τοιοῦτοι. εἰ δὲ τοῦτ' ἔχομεν, καὶ
 5 τὰς λύσεις ἔχομεν· αἱ γὰρ τούτων ἐνστάσεις λύσεις
 εἰσὶν. ἔχομεν δέ, παρ' ὅποσα γίνονται, καὶ τοὺς
 φαινομένους, φαινομένους δὲ οὐχ ὁτῶν ἀλλὰ τοῖς
 τοιοῖσδε· ἀόριστα γάρ ἐστιν, εἴαν τις σκοπῇ παρ'
 ὅποσα φαίνονται τοῖς τυχοῦσιν. ὥστε φανερόν
 ὅτι τοῦ διαλεκτικοῦ ἐστὶ τὸ δύνασθαι λαβεῖν παρ'
 ὅσα γίνεται διὰ τῶν κοινῶν ἢ ὧν ἔλεγχος ἢ φαινό-
 10 μενος ἔλεγχος, καὶ ἢ διαλεκτικὸς ἢ φαινόμενος
 διαλεκτικὸς ἢ πειραστικός.

X. Οὐκ ἔστι δὲ διαφορὰ τῶν λόγων ἣν λέγουσί
 τινες, τὸ εἶναι τοὺς μὲν πρὸς τοῦνομα λόγους,
 ἐτέρους δὲ πρὸς τὴν διάνοιαν· ἄτοπον γὰρ τὸ ὑπο-
 15 λαμβάνειν ἄλλους μὲν εἶναι πρὸς τοῦνομα λόγους,
 ἐτέρους δὲ πρὸς τὴν διάνοιαν, ἀλλ' οὐ τοὺς αὐτοὺς.
 τί γάρ ἐστι τὸ μὴ πρὸς τὴν διάνοιαν ἀλλ' ἢ ὅταν
 μὴ χρῆται τῷ ὀνόματι, ἐφ' ᾧ οἰόμενος ἐρωτᾶσθαι,¹

¹ Reading with Poste ἐφ' ᾧ οἰόμενος ἐρωτᾶσθαι for οἰόμενος
 ἐρωτᾶσθαι ἐφ' ᾧ of the mss.

but only those which concern dialectic ; for these are common to every art and faculty. And it is the function of the scientific man to examine the refutation which is peculiar to each science and see whether it is apparent only and not real, or, if it is real, why it is so ; whereas it is the function of dialecticians to examine a refutation which depends on common principles which do not fall under any one art. For if we know the sources of generally accepted proofs about any particular subject, we know also the sources of the refutations ; for a refutation is a proof of a contradictory, and so one or two proofs of a contradictory make up a refutation. We know, then, the various sources of all such proofs, and, knowing these, we also know their solutions ; for the objections to these are the solutions. We also know the various sources of apparent refutations—apparent, that is, not to everyone but only to a certain kind of mind ; for it would be an endless task to examine the various ways in which they are apparent to the man in the street. It is, therefore, clear that it is the function of the dialectician to be able to grasp the various ways in which, on the basis of common principles, a real or apparent refutation, that is, dialectical or apparently dialectical or part of an examination, is brought about.

X. No real distinction, such as some people propose, exists between arguments used against the word and those used against the thought ; for it is absurd to suppose that some arguments are used against the word and others against the thought, and not the same in both cases. For what is failure to use the argument against the thought except what happens when a man does not apply the term in the meaning about which the man questioned thought that he

[Note (δ).
The functions of the dialectician and the scientist distinguished.]

[Note (ε).
Various distinctions.]
(a) Arguments against the word $\propto$ those against the thought.

ὁ ἐρωτώμενος ἔδωκεν; τὸ δ' αὐτὸ τοῦτό ἐστι καὶ
 πρὸς τοῦνομα. τὸ δὲ πρὸς τὴν διάνοιαν, ὅταν ἐφ'
 20 ᾧ ἔδωκεν διανοηθείς. εἰ δὴ¹ πλείω σημαίνοντος
 τοῦ ὀνόματος οἶοιτο ἐν σημαίνειν καὶ ὁ ἐρωτῶν
 καὶ ὁ ἐρωτώμενος, οἷον ἴσως τὸ ὄν ἢ τὸ ἐν πολλὰ
 σημαίνει, ἀλλὰ καὶ ὁ ἀποκρινόμενος καὶ ὁ ἐρωτῶν²
 ἐν οἰόμενος εἶναι ἠρώτησε, καὶ ἔστιν ὁ λόγος ὅτι
 ἐν πάντα, οὗτος πρὸς τοῦνομα ἔσται ἢ πρὸς τὴν
 25 διάνοιαν τοῦ ἐρωτωμένου διειλεγμένος; εἰ δέ γέ
 τις πολλὰ οἶεται σημαίνειν, δῆλον ὅτι οὐ πρὸς τὴν
 διάνοιαν. πρῶτον μὲν γὰρ περὶ τοὺς τοιούτους
 ἐστὶ λόγους τὸ πρὸς τοῦνομα καὶ πρὸς τὴν διάνοιαν
 ὅσοι πλείω σημαίνουσιν, εἴτα περὶ ὄντινόν ἐστίν·
 οὐ γὰρ ἐν τῷ λόγῳ ἐστὶ τὸ πρὸς τὴν διάνοιαν εἶναι,
 30 ἀλλ' ἐν τῷ τὸν ἀποκρινόμενον ἔχειν πως πρὸς τὰ
 δεδομένα. εἴτα πρὸς τοῦνομα πάντας ἐνδέχεται
 αὐτοὺς εἶναι. τὸ γὰρ πρὸς τοῦνομα τὸ μὴ πρὸς
 τὴν διάνοιαν εἶναί ἐστιν ἐνταῦθα. εἰ γὰρ μὴ πάντες,
 ἔссονται τινες ἕτεροι οὔτε πρὸς τοῦνομα οὔτε πρὸς
 τὴν διάνοιαν· οἱ δέ φασι πάντας, καὶ διαιροῦνται
 35 ἢ πρὸς τοῦνομα ἢ πρὸς τὴν διάνοιαν εἶναι πάντας,
 ἄλλους δ' οὔ. ἀλλὰ μὴν ὅσοι συλλογισμοί εἰσι
 παρὰ τὸ πλεοναχῶς, τούτων εἰσὶ τινες οἱ παρὰ

¹ Omitting τις after εἰ δὴ.

² Omitting Ζήνων after ἐρωτῶν as a gloss.

was being questioned when he made the concession ? And this is equivalent to using it against the word ; whereas to use it against the thought is to apply it to the sense about which the man was thinking when he made the concession. If, then, when the word has more than one meaning, both the questioner and the man questioned were to think that it had only one meaning—as, for example, ‘ unity ’ and ‘ being ’ have several meanings but both the answerer answers and the questioner puts his question on the supposition that there is only one meaning and that the argument is that all things are one—will the argument have been directed against the word and not rather against the thought of the man questioned ? If, on the contrary, one of them thinks that the word has several meanings, obviously the argument is not directed against the thought. For application to the word and application to the thought belong primarily to arguments which signify several things ambiguously, but, secondarily, to any argument whatsoever ; for the application to the thought does not depend on the argument but on a certain attitude of mind in the answerer towards what has been conceded. Next, it is possible for all arguments to be applied to the word ; for in the case under discussion ‘ to be applied to the word ’ means ‘ not to be applied to the thought.’ For if all are not applied to the word or the thought, there will be a third class not applied to either ; but they declare that the classification is exhaustive and divide them into those applied to the word and those applied to the thought, and there is no other class. But, as a matter of fact, reasonings dependent on the word are amongst those dependent on a multiplicity of meanings. For it is an

170 b

τοῦνομα. ἀτόπως μὲν γὰρ καὶ εἴρηται τὸ παρὰ τοῦνομα φάναι πάντας τοὺς παρὰ τὴν λέξιν· ἀλλ' οὖν εἰσὶ τινες παραλογισμοὶ οὐ τῷ τὸν ἀποκρινόμενον πρὸς τούτους ἔχειν πως, ἀλλὰ τῷ τοιονδὶ
 40 ἐρώτημα τὸν λόγον αὐτὸν ἔχειν, ὃ πλείω σημαίνει.

171 a "Ὅλως τε ἄτοπον τὸ περὶ ἐλέγχου διαλέγεσθαι, ἀλλὰ μὴ πρότερον περὶ συλλογισμοῦ· ὁ γὰρ ἔλεγχος συλλογισμὸς ἐστίν, ὥστε χρὴ καὶ περὶ συλλογισμοῦ πρότερον ἢ περὶ ψευδοῦς ἐλέγχου· ἔστι γὰρ ὁ τοιοῦ-
 5 τος ἔλεγχος φαινόμενος συλλογισμὸς ἀντιφάσεως. διὸ ἢ ἐν τῷ συλλογισμῷ ἔσται τὸ αἴτιον ἢ ἐν τῇ ἀντιφάσει (προσκεῖσθαι γὰρ δεῖ τὴν ἀντίφασιν), ὅτε δ' ἐν ἀμφοῖν, ἂν ἢ φαινόμενος ἔλεγχος. ἔστι δὲ ὁ μὲν τοῦ σιγῶντα λέγειν ἐν τῇ ἀντιφάσει, οὐκ ἐν τῷ συλλογισμῷ, ὁ δέ, ἃ μὴ ἔχοι τις, δοῦναι, ἐν
 10 ἀμφοῖν, ὁ δὲ ὅτι ἢ Ὀμήρου ποιήσις σχῆμα διὰ τοῦ κύκλου ἐν τῷ συλλογισμῷ. ὁ δ' ἐν μηδετέρῳ ἀληθὲς συλλογισμός.

Ἀλλὰ δὴ ὅθεν ὁ λόγος ἦλθε, πότερον οἱ ἐν τοῖς μαθήμασι λόγοι πρὸς τὴν διάνοιάν εἰσιν ἢ οὐ; καὶ εἴ τιμι δοκεῖ πολλὰ σημαίνειν τὸ τρίγωνον, καὶ
 15 ἔδωκε μὴ ὡς τοῦτο τὸ σχῆμα ἐφ' οὗ συνεπεράνατο ὅτι δύο ὀρθαί, πότερον πρὸς τὴν διάνοιαν οὗτος διείλεκται τὴν ἐκείνου ἢ οὐ;

"Ἐτι εἰ πολλὰ μὲν σημαίνει τοῦνομα, ὁ δὲ μὴ νοεῖ

ON SOPHISTICAL REFUTATIONS, x

absurd statement that 'dependent on the name' describes all arguments connected with language. The truth is that there are some false arguments which do not depend on a particular attitude of mind on the part of the answerer towards them but are due to the fact that the argument itself involves the kind of question which can bear more than one meaning.

It is quite absurd to discuss refutation without previously discussing proof; for refutation is a proof, and so we ought to discuss proof before discussing false refutation; for such refutation is an apparent proof of a contradiction. Therefore the cause of falsity will lie either in the proof or in the contradiction (for the contradiction must be added), but sometimes in both, if there be a merely apparent refutation. In the argument that 'the silent speaks,' the refutation lies in the contradiction, not in the proof; in the argument that 'a man can give away what he has not got,' it lies in both; in the argument that 'Homer's poetry is a figure' because it forms a 'cycle,' it lies in the proof. The argument that errs in neither respect is a true proof. (Refutation and Proof.)

But to resume from the point whence the argument digressed,^a Are mathematical arguments always applied to the thought or not? If anyone thinks that the term 'triangle' has several meanings and has granted it in a sense other than a figure which he has proved to contain two right angles, has the questioner reasoned against the answerer's thought or not?

Further, if the name has several meanings but the answerer does not think or imagine that this is so,

^a 170 b 40.

μηδ' οἶεται, πῶς οὗτος οὐ πρὸς τὴν διάνοιαν διεί-
 λεκται; ἢ πῶς δεῖ ἐρωτᾶν πλὴν διδόναι διαίρεσιν,
 20 εἴτ' ἐρωτήσει¹ τις εἰ ἔστι σιγῶντα λέγειν ἢ οὐ, ἢ
 ἔστι μὲν ὥς οὐ, ἔστι δ' ὥς ναί; εἰ δὴ τις δοίῃ
 μηδαμῶς, ὁ δὲ διαλεχθείῃ, ἄρ' οὐ πρὸς τὴν διάνοιαν
 διείλεκται; καίτοι ὁ λόγος δοκεῖ τῶν παρὰ τοῦ-
 νομα εἶναι. οὐκ ἄρα ἐστὶ γένος τι λόγων τὸ πρὸς
 τὴν διάνοιαν. ἀλλ' οἱ μὲν πρὸς τοῦνομά εἰσι· καὶ
 25 τοιοῦτοι οὐ πάντες, οὐχ ὅτι οἱ ἔλεγχοι, ἀλλ' οὐδ'
 οἱ φαινόμενοι ἔλεγχοι. εἰσὶ γὰρ καὶ μὴ παρὰ τὴν
 λέξιν φαινόμενοι ἔλεγχοι, οἷον οἱ παρὰ τὸ συμ-
 βεβηκὸς καὶ ἕτεροι.

Εἰ δέ τις ἀξιοῖ διαιρεῖν, ὅτι λέγω δὲ σιγῶντα
 λέγειν τὰ μὲν ὡδὶ τὰ δ' ὡδί, ἀλλὰ τοῦτό γ' ἐστὶ
 30 πρῶτον μὲν ἄτοπον, τὸ ἀξιοῦν (ἐνίοτε γὰρ οὐ δοκεῖ
 τὸ ἐρωτώμενον πολλαχῶς ἔχειν, ἀδύνατον δὲ
 διαιρεῖν ὃ μὴ οἶεται). ἔπειτα τὸ διδάσκειν τί ἄλλο
 ἔσται; φανερόν γὰρ ποιήσει ὥς ἔχει τῷ μήτ'
 ἐσκεμμένῳ μήτ' εἰδότι μήθ' ὑπολαμβάνοντι ὅτι ἄλ-
 λως λέγεται. ἐπεὶ καὶ ἐν τοῖς μὴ διπλοῖς τί κωλύει
 35 τοῦτο παθεῖν; ἄρα ἴσαι αἱ μονάδες ταῖς δυνάσιν ἐν
 τοῖς τέτταρσιν; εἰσὶ δὲ δυνάδες αἱ μὲν ὡδὶ ἐνοῦσαι
 αἱ δὲ ὡδί. καὶ ἄρα τῶν ἐναντίων μία ἐπιστήμη ἢ
 οὐ; ἔστι δ' ἐναντία τὰ μὲν γνωστὰ τὰ δ' ἄγνωστα.

¹ Reading εἴτ' ἐρωτήσει for εἴτ' ἐρωτήσειε.

has not the questioner reasoned against his thought ? Or how else must the question be asked except by offering a distinction ? In which case one will ask, ' Is it or is it not possible for a man to speak when silent, or is the answer in one sense " No," in another " Yes " ? ' But if the answerer were to refuse to grant the possibility in any sense and the questioner were to argue that it is possible, has he not argued against the thought of his opponent ? Yet the argument is generally regarded as among those connected with the name ; there is not, therefore, any class of argument which is directed against the thought. Some arguments are directed against the name, and such arguments are not all of them even apparent refutations, still less true refutations. For there are also apparent refutations which are not connected with language, for example, amongst others, those connected with accident.

But if one claims to make distinctions, saying, ' By " the silent speaking " I mean sometimes one thing and sometimes another,' this claim is, in the first place, absurd (for sometimes the question does not seem to involve any ambiguity, and it is impossible to make a distinction where no ambiguity is suspected) ; and, secondly, what else will didactic argument be but this ? For it will make clear the position to one who neither has considered nor knows nor conceives that a second meaning is possible. For why should not the same process be used where there is no double meaning ? ' Are the units in four equal to the twos ? Bear in mind that the twos are contained in one sense in one way and in another sense in another way.' Again, ' Is the knowledge of contraries one or not ? Notice that some contraries

171 b ὥστ' ἔοικεν ἀγνοεῖν ὁ τοῦτο ἀξιῶν ὅτι ἕτερον τὸ διδάσκειν τοῦ διαλέγεσθαι, καὶ ὅτι δεῖ τὸν μὲν διδάσκοντα μὴ ἐρωτᾶν ἀλλ' αὐτὸν δῆλα ποιεῖν, τὸν δ' ἐρωτᾶν.

XI. Ἔτι τὸ φάναι ἢ ἀποφάναι ἀξιούν οὐ δεικνύντος ἐστίν, ἀλλὰ πείραν λαμβάνοντος. ἡ γὰρ
 5 πειραστική ἐστι διαλεκτική τις καὶ θεωρεῖ οὐ τὸν εἰδότα ἀλλὰ τὸν ἀγνοοῦντα καὶ προσποιούμενον. ὁ μὲν οὖν κατὰ τὸ πρᾶγμα θεωρῶν τὰ κοινὰ διαλεκτικός, ὁ δὲ τοῦτο φαινομένως ποιῶν σοφιστικός. καὶ συλλογισμὸς ἐριστικός καὶ σοφιστικός ἐστίν
 10 εἰς μὲν ὁ φαινόμενος συλλογισμὸς, περὶ ὧν ἡ διαλεκτικὴ πειραστικὴ ἐστίν, κἂν ἀληθὲς τὸ συμπέρασμα ᾗ· τοῦ γὰρ διὰ τί ἀπατητικός ἐστίν· καὶ ὅσοι μὴ ὄντες κατὰ τὴν ἐκάστου μέθοδον παραλογισμοὶ δοκοῦσιν εἶναι κατὰ τὴν τέχνην. τὰ γὰρ ψευδογραφήματα οὐκ ἐριστικά (κατὰ γὰρ τὰ ὑπὸ τὴν τέχνην οἱ παραλογισμοί), οὐδέ γ' εἴ τί ἐστι ψευδογράφημα
 15 περὶ ἀληθές, οἷον τὸ Ἱπποκράτους ἢ ὁ τετραγωνισμὸς ὁ διὰ τῶν μηνίσκων. ἀλλ' ὥς Βρύσων ἐτετραγώνιζε τὸν κύκλον, εἰ καὶ τετραγωνίζεται ὁ κύκλος, ἀλλ' ὅτι οὐ κατὰ τὸ πρᾶγμα, διὰ τοῦτο σοφιστικός. ὥστε ὁ τε περὶ τῶνδε φαινόμενος συλλογισμὸς ἐριστικός λόγος, καὶ ὁ κατὰ τὸ πρᾶγμα

^a On the method of squaring the circle by means of lunules and those employed by Hippocrates and Bryson see Ivor Thomas, *Greek Mathematical Works* (Loeb Classical Library), vol. 1, pp. 234-253, 310-313 (Hippocrates); 314-317 (Bryson); and E. Poste, *Soph. El.* pp. 245 ff.

ON SOPHISTICAL REFUTATIONS, X-XI

are knowable, others are not.' Thus the man who makes this claim seems not to know that didactic is one thing and dialectic another, and that the man who employs didactic should not ask questions but himself make things clear, while the dialectician asks questions. (b) Didactic $\propto$ dialectical argument.

XI. Further, to demand that the answerer should either affirm or deny is not the function of one who is displaying something but of one who is making an examination. For the art of examination is a kind of dialectic and has in view not the man who knows but the man who is ignorant and pretends to know. The man, then, who views general principles in the light of the particular case is a dialectician, while he who only apparently does this is a sophist. Now one form of contentious and sophistic reasoning is reasoning which is only apparent, with which dialectic deals as a method of examination, even though the conclusion be true ; for it is deceptive in the matter of cause. Then there are those false reasonings which do not accord with the method of inquiry peculiar to the subject yet seem to accord with the art concerned. For false geometrical figures are not contentious (for the resultant fallacies accord with the subject-matter of the art), and the same is the case with any false figure illustrating something which is true, for example, Hippocrates' figure or the squaring of the circle by means of lunules.^a On the other hand, Bryson's method of squaring the circle, even though this be successful, is nevertheless sophistical, because it does not accord with the subject-matter concerned. And so any merely apparent reasoning on these topics is a contentious argument, and any reasoning which merely appears to accord (c) Examination and contentious argument $\propto$ dialectical argument.

171 b

- 20 φαινόμενος συλλογισμός, κἂν ἢ συλλογισμός, ἐριστικός λόγος· φαινόμενος γάρ ἐστι κατὰ τὸ πρᾶγμα, ὥστ' ἀπατητικὸς καὶ ἄδικος. ὥσπερ γὰρ ἡ ἐν ἀγῶνι ἀδικία εἰδὸς τι ἔχει καὶ ἔστιν ἀδικομαχία τις, οὕτως ἐν ἀντιλογίᾳ ἀδικομαχία ἡ ἐριστική ἐστιν· ἐκεῖ τε γὰρ οἱ πάντως νικᾶν προαιρούμενοι
- 25 πάντων ἄπτονται καὶ ἐνταῦθα οἱ ἐριστικοί. οἱ μὲν οὖν τῆς νίκης αὐτῆς χάριν τοιοῦτοι ἐριστικοὶ ἄνθρωποι καὶ φιλέριδες δοκοῦσιν εἶναι, οἱ δὲ δόξης χάριν τῆς εἰς χρηματισμὸν σοφιστικοί· ἡ γὰρ σοφιστική ἐστιν, ὥσπερ εἵπομεν, χρηματιστική τις ἀπὸ σοφίας φαινομένης, διὸ φαινομένης ἀπο-
- 30 δείξεως ἐφίενται. καὶ τῶν λόγων τῶν αὐτῶν μὲν εἰσιν οἱ φιλέριδες καὶ σοφισταί, ἀλλ' οὐ τῶν αὐτῶν ἔνεκεν. καὶ λόγος ὁ αὐτὸς μὲν ἔσται σοφιστικός καὶ ἐριστικός, ἀλλ' οὐ κατὰ ταῦτόν, ἀλλ' ἢ μὲν νίκης φαινομένης, ἐριστικός, ἢ δὲ σοφίας, σοφιστικός· καὶ γὰρ ἡ σοφιστική ἐστι φαινομένη σοφία
- 35 τις ἀλλ' οὐκ οὕσα. ὁ δ' ἐριστικός ἐστί πως οὕτως ἔχων πρὸς τὸν διαλεκτικὸν ὡς ὁ ψευδογράφος πρὸς τὸν γεωμετρικόν· ἐκ γὰρ τῶν αὐτῶν τῷ διαλεκτικῷ¹ παραλογίζεται καὶ ὁ ψευδογράφος τῷ γεωμέτρῳ.² ἀλλ' ὁ μὲν οὐκ ἐριστικός, ὅτι ἐκ τῶν ἀρχῶν καὶ
- 172 a συμπερασμάτων τῶν ὑπὸ τὴν τέχνην ψευδογράφει· ὁ δ' ὑπὸ τὴν διαλεκτικὴν περὶ μὲν τᾶλλα ὅτι ἐρι-

¹ Reading τῷ διαλεκτικῷ with Wallies for διαλεκτικῇ.

² Reading τῷ γεωμέτρῳ with Poste for τὸν γεωμέτρην.

with the subject-matter, even though it be genuine reasoning, is contentious argument; for it only apparently accords with the subject-matter and so is deceptive and unfair. For just as unfairness in an athletic contest takes a definite form and is an unfair kind of fighting, so contentious reasoning is an unfair kind of fighting in argument; for in the former case those who are bent on victory at all costs stick at nothing, so too in the latter case do contentious arguers. Those, then, who behave like this merely to win a victory, are generally regarded as contentious and quarrelsome, while those who do so to win a reputation which will help them to make money are regarded as sophistical. For, as we have said,^a the art of the sophist is a money-making art which trades on apparent wisdom, and so sophists aim at apparent proof. Quarrelsome people and sophists use the same arguments, but not for the same reasons; and the same argument will be sophistical and contentious but not from the same point of view. If the semblance of victory is the motive, it is contentious; if the semblance of wisdom, it is sophistical: for sophistry is an appearance of wisdom without the reality. The contentious arguer bears much the same relation to the dialectician as the drawer of false geometrical figures bears to the geometrician; for he reasons falsely on the same basis as the dialectician, while the drawer of false figures argues on the same basis as the true geometrician. But the latter is not a contentious reasoner, because he constructs his false figure on the principles and conclusions which come under the art of geometry, whereas the former, arguing on principles which come under dialectic, will clearly be contentious on the other subjects.

(d) Contentious & sophistical argument.

(e) Further comparisons between contentious and dialectical argument.

στικός ἐσται δῆλον. οἷον ὁ τετραγωνισμὸς ὁ μὲν
 διὰ τῶν μηνίσκων οὐκ ἐριστικός, ὁ δὲ Βρύσωνος
 ἐριστικός· καὶ τὸν μὲν οὐκ ἔστι μετενεγκεῖν ἀλλ'
 5 ἢ πρὸς γεωμετρίαν μόνον διὰ τὸ ἐκ τῶν ἰδίων
 εἶναι ἀρχῶν, τὸν δὲ πρὸς πολλούς, ὅσοι μὴ ἴσασι
 τὸ δυνατόν ἐν ἐκάστω καὶ τὸ ἀδύνατον· ἀρμόσει
 γάρ. ἢ ὡς Ἀντιφῶν ἐτετραγώνιζεν. ἢ εἴ τις μὴ
 φαίη βέλτιον εἶναι ἀπὸ δείπνου περιπατεῖν διὰ τὸν
 Ζήνωνος λόγον, οὐκ ἱατρικός· κοινὸς γάρ. εἰ μὲν
 10 οὖν πάντα ὁμοίως εἶχεν ὁ ἐριστικός πρὸς τὸν δια-
 λεκτικὸν τῷ ψευδογράφῳ πρὸς τὸν γεωμέτρη, οὐκ
 ἂν ἦν περὶ ἐκείνων ἐριστικός. νῦν δ' οὐκ ἔστιν ὁ
 διαλεκτικὸς περὶ γένος τι ὠρισμένον, οὐδὲ δεικ-
 τικὸς οὐδενός, οὐδὲ τοιοῦτος οἷος ὁ καθόλου. οὔτε
 γάρ ἐστιν ἅπαντα ἐν ἐνί τινι γένει, οὔτε εἰ εἴη, οἷόν
 15 τε ὑπὸ τὰς αὐτὰς ἀρχὰς εἶναι τὰ ὄντα. ὥστ' οὐ-
 δεμία τέχνη τῶν δεικνυσσῶν τινὰ φύσιν ἐρωτη-
 τική ἐστιν· οὐ γὰρ ἔξεστιν ὁποτερονοῦν τῶν μορίων
 δοῦναι· συλλογισμὸς γὰρ οὐ γίνεται ἐξ ἀμφοῖν. ἢ
 δὲ διαλεκτικὴ ἐρωτητικὴ ἐστιν. εἰ δ' ἐδείκνυνεν,
 εἰ καὶ μὴ πάντα, ἀλλὰ τά γε πρῶτα καὶ τὰς οἰκείας
 20 ἀρχὰς οὐκ ἂν ἠρώτα. μὴ διδόντος¹ γὰρ οὐκ ἂν ἔτι
 εἶχεν ἐξ ὧν ἔτι διαλέξεται πρὸς τὴν ἔνστασιν. ἢ

¹ Bekker's διδόντας is a misprint for διδόντος.

^a See *Phys.* 185 a 17; Ivor Thomas, *op. cit.* pp. 310-317.

^b That motion is impossible; see *Phys.* 239 b 10 ff.

For example, the squaring of the circle by means of lunules is not contentious, whereas Bryson's method *is* contentious. It is impossible to transfer the former outside the sphere of geometry because it is based on principles which are peculiar to geometry, whereas the latter can be used against many disputants, namely, all those who do not know what is possible and what impossible in any particular case; for it will always be applicable. And the same is true of the way in which Antiphon used to square the circle.^a Or, again, if someone were to deny that it is better to take a walk after dinner because of Zeno's argument,^b it would not be a medical argument; for it is of a general application. Accordingly, if the contentious argument stood in every respect in the same relation to the dialectical as the constructor of false figures stands to the geometrician, there would be no contentious argument on those topics. But, as it is, dialectical argument has no definite sphere, nor does it demonstrate anything in particular, nor is it of the nature of the universal. For there is no genus which includes all things, and, if there were, it would not be possible for them to come under the same principles. So no art which aims at showing the nature of anything proceeds by interrogation; for it is impossible to grant either one of two portions of the question; for a proof cannot result from both of them. Dialectic, however, does proceed by interrogation, whereas, if it aimed at showing something, it would refrain from questions, if not about everything, at any rate about primary things and particular principles; for if the opponent refused to grant these, dialectic would no longer have any basis on which to argue against the

δ' αὐτὴ καὶ πειραστική. οὐδὲ γὰρ ἡ πειραστικὴ
 τοιαύτη ἐστὶν οἷα ἡ γεωμετρία, ἀλλ' ἦν ἂν ἔχοι
 καὶ μὴ εἰδώς τις. ἔξεστι γὰρ πεῖραν λαβεῖν καὶ
 τὸν μὴ εἰδότα τὸ πρᾶγμα τοῦ μὴ εἰδότος, εἴπερ
 25 καὶ δίδωσιν οὐκ ἐξ ὧν οἶδεν οὐδ' ἐκ τῶν ἰδίων,
 ἀλλ' ἐκ τῶν ἐπομένων, ὅσα τοιαῦτά ἐστιν ἃ εἰδότα
 μὲν οὐδὲν κωλύει μὴ εἰδέναι τὴν τέχνην, μὴ εἰδότα
 δ' ἀνάγκη ἀγνοεῖν. ὥστε φανερόν ὅτι οὐδενὸς
 ὠρισμένου ἡ πειραστικὴ ἐπιστήμη ἐστίν. διὸ καὶ
 περὶ πάντων ἐστί· πᾶσαι γὰρ αἱ τέχναι χρῶνται
 30 καὶ κοινοῖς τισίν. διὸ πάντες καὶ οἱ ἰδιῶται τρόπον
 τινὰ χρῶνται τῇ διαλεκτικῇ καὶ πειραστικῇ· πάντες
 γὰρ μέχρι τινὸς ἐγχειροῦσιν ἀνακρίνειν τοὺς ἐπαγ-
 γελλομένους. ταῦτα δ' ἐστὶ τὰ κοινά· ταῦτα γὰρ
 οὐδὲν ἦττον ἴσασι αὐτοί, κἂν δοκῶσι λίαν ἔξω
 λέγειν. ἐλέγχουσι οὖν ἅπαντες· ἀτέχνως γὰρ
 35 μετέχουσι τούτου οὐ ἐντέχνως ἡ διαλεκτικὴ ἐστι,
 καὶ ὁ τέχνη συλλογιστικὴ πειραστικὸς διαλεκτικός.
 ἐπεὶ δ' ἐστὶ πολλὰ μὲν ταῦτά¹ κατὰ πάντων, οὐ
 τοιαῦτα δ' ὥστε φύσιν τινὰ εἶναι καὶ γένος, ἀλλ'
 οἷον αἱ ἀποφάσεις, τὰ δ' οὐ τοιαῦτα ἀλλὰ ἴδια,
 ἔστιν ἐκ τούτων περὶ ἀπάντων πεῖραν λαμβάνειν,

¹ Reading ταῦτα for ταῦτα with BC and omitting καὶ with AB.

objection. Dialectic is at the same time an art of examination ; for neither is the art of examination of the same nature as geometry but it is an art which a man could possess even without any scientific knowledge. For even a man without knowledge of the subject can examine another who is without knowledge, if the latter makes concessions based not on what he knows nor on the special principles of the subject but on the consequential facts, which are such that, though to know them does not prevent him from being ignorant of the art in question, yet not to know them necessarily involves ignorance of it. Clearly, therefore, the art of examination is not knowledge of any definite subject, and it therefore follows that it deals with every subject ; for all the arts employ also certain common principles. Accordingly, everyone, including the unscientific, makes some kind of use of dialectic and the art of examination ; for all, up to a certain point, attempt to test those who profess knowledge. Now this is where the common principles come in ; for they know these of themselves just as well as the scientists, even though their expression of them seems to be very inaccurate. Thus they all practise refutation ; for they perform unmethodically the task which dialectic performs methodically, and the man who carries out an examination by means of an art of reasoning is a dialectician. Now there are many identical principles in every sphere, but these are not such as to have a particular nature and form a particular class—resembling, in this respect, negations—while others are not of this kind but limited to special spheres ; it is, therefore, possible by means of these to hold examinations on every subject, and that there can be an

172 b καὶ εἶναι τέχνην τινά, καὶ μὴ τοιαύτην εἶναι οἶαι αἱ δεικνύουσαι. διόπερ ὁ ἐριστικός οὐκ ἔστιν οὕτως ἔχων πάντη ὡς ὁ ψευδογράφος· οὐ γὰρ ἔσται παραλογιστικός ἐξ ὠρισμένου τινὸς γένους ἀρχῶν, ἀλλὰ περὶ πᾶν γένος ἔσται ὁ ἐριστικός.

5 Τρόποι μὲν οὖν εἰσὶν οὗτοι τῶν σοφιστικῶν ἐλέγχων· ὅτι δ' ἐστὶ τοῦ διαλεκτικοῦ τὸ θεωρῆσαι περὶ τούτων καὶ δύνασθαι ταῦτα ποιεῖν, οὐ χαλεπὸν ἰδεῖν· ἢ γὰρ περὶ τὰς προτάσεις μέθοδος ἅπασαν ἔχει ταύτην τὴν θεωρίαν.

XII. Καὶ περὶ μὲν τῶν ἐλέγχων εἴρηται τῶν
10 φαινομένων· περὶ δὲ τοῦ ψευδόμενον τι δεῖξαι καὶ τὸν λόγον εἰς ἄδοξον ἀγαγεῖν (τοῦτο γὰρ ἦν δεύ-
τερον τῆς σοφιστικῆς προαιρέσεως) πρῶτον μὲν οὖν ἐκ τοῦ πυνθάνεσθαι πως καὶ διὰ τῆς ἐρωτήσεως συμβαίνει μάλιστα. τὸ γὰρ πρὸς μηδὲν ὀρίσαντα κείμενον ἐρωτᾶν θηρευτικόν ἐστι τούτων· εἰκῇ γὰρ
15 λέγοντες ἀμαρτάνουσι μᾶλλον· εἰκῇ δὲ λέγουσιν, ὅταν μηδὲν ἔχωσι προκείμενον. τό τε ἐρωτᾶν πολλά, καὶ ὠρισμένον ἢ πρὸς ὃ διαλέγεται, καὶ τὸ τὰ δοκοῦντα λέγειν ἀξιοῦν ποιεῖ τιν' εὐπορίαν τοῦ εἰς ἄδοξον ἀγαγεῖν ἢ ψεῦδος· ἐάν τε ἐρωτώμενος φῇ ἢ ἀποφῇ τούτων τι, ἄγειν πρὸς ἃ ἐπιχειρήματος
20 εὐπορεῖ. δυνατόν δὲ νῦν ἦττον κακουργεῖν διὰ τούτων ἢ πρότερον· ἀπαιτοῦνται γὰρ τί τοῦτο πρὸς τὸ ἐν ἀρχῇ. στοιχείον δὲ τοῦ τυχεῖν ἢ ψεύδους τινὸς ἢ ἀδόξου τὸ μηδεμίαν εὐθὺς ἐρωτᾶν θέσιν,

art of doing this, though not of the same kind as the demonstrative arts. For this reason the contentious arguer is not in all respects in the same position as the constructor of a false geometrical figure ; for the contentious arguer will not reason falsely on principles of a definite class but will deal with every kind.

These, then, are the modes of sophistical refutations. It is easy to see that to investigate them and to be able to apply them is the task of the dialectician ; for the method of dealing with propositions constitutes the whole of this study.

XII. We have now dealt with apparent refutations. As for showing that the answerer is stating a fallacy and leading the argument towards a paradox—for this was the second aim of the sophist—this is, in the first place, best achieved by some kind of inquiry and by questioning. For to ask a question without defining it in relation to a subject laid down is a good method of hunting out things of this sort ; for people are more likely to fall into error when they speak at random, and they speak at random when they have no definite subject set before them. Also to ask a number of questions, even though the point against which one is arguing is defined, and to demand that the answerer should say what he thinks, gives ample opportunity of leading a man into a paradox or fallacy, and also, if, when asked, he says ' yes ' or ' no ' to any of the questions, of leading him to topics on which one has abundant material for attacking him. This unfair method, however, is much less practicable than formerly ; for people demand, ' What has this to do with the original question ? ' An elementary rule for obtaining a fallacious or paradoxical statement is not to put any thesis directly but to pretend that

(B) FALLACY AND
(C) PARADOX.
How these are to be caused :

(a) By asking vague questions.

(b) By asking numerous questions.

172 b

ἀλλὰ φάσκειν ἐρωτᾶν μαθεῖν βουλόμενον· χώραν γὰρ ἐπιχειρήματος ἢ σκέψις ποιεῖ.

25 Πρὸς δὲ τὸ ψευδόμενον δεῖξαι ἴδιος τόπος ὁ σοφιστικός, τὸ ἄγειν πρὸς τοιαῦτα πρὸς ἃ εὐπορεῖ λόγων· ἔσται δὲ καὶ καλῶς καὶ μὴ καλῶς τοῦτο ποιεῖν, καθάπερ ἐλέχθη πρότερον.

Πάλιν πρὸς τὸ παράδοξα λέγειν σκοπεῖν ἐκ τίνος
30 γένους ὁ διαλεγόμενος, εἴτ' ἐπερωτᾶν ὁ τοῖς πολλοῖς οὗτοι λέγουσι παράδοξον· ἔστι γὰρ ἐκάστοις τι τοιοῦτον. στοιχεῖον δὲ τούτων τὸ τὰς ἐκάστων εἰληφέναι θέσεις ἐν ταῖς προτάσεσιν. λύσις δὲ καὶ τούτων ἢ προσήκουσα φέρεται τὸ ἐμφανίζειν ὅτι οὐ διὰ τὸν λόγον συμβαίνει τὸ ἄδοξον· ἀεὶ δὲ τοῦτο
35 καὶ βούλεται ὁ ἀγωνιζόμενος.

Ἔτι δ' ἐκ τῶν βουλήσεων καὶ τῶν φανερῶν
δοξῶν. οὐ γὰρ ταῦτα βούλονται τε καὶ φασίν,
ἀλλὰ λέγουσι μὲν τοὺς εὐσχημονεστάτους τῶν λόγων,
βούλονται δὲ τὰ φαινόμενα λυσιτελεῖν, οἶον
173 a τεθνάναι καλῶς μᾶλλον ἢ ζῆν ἡδέως φασὶ δεῖν καὶ
πένεσθαι δικαίως μᾶλλον ἢ πλουτεῖν αἰσchrῶς, βού-
λονται δὲ τὰναντία. τὸν μὲν οὖν λέγοντα κατὰ τὰς
βουλήσεις εἰς τὰς φανερὰς δόξας ἀκτέον, τὸν δὲ
κατὰ ταύτας εἰς τὰς ἀποκεκρυμμένας· ἀμφοτέρως
5 γὰρ ἀναγκαῖον παράδοξα λέγειν· ἢ γὰρ πρὸς τὰς
φανερὰς ἢ πρὸς τὰς ἀφανεῖς δόξας ἐροῦσιν ἐναντία.

^a *Topics* 111 b 32 ff.

one is asking from a desire to learn ; for this method of inquiry gives an opening for attack.

A special method of showing up a fallacy is the sophistical method, namely, to lead one's opponent to the kind of statements against which one has plenty of arguments ; it will be possible to do this in a right and in a wrong way, as has already been said.^a

(c) By inducing one's opponent to make statements which can be easily refuted.

Again, to elicit a paradox, you should see to what school the person who is discussing with you belongs, and then question him on some pronouncement of that school which most people regard as paradoxical ; for every school has some tenet of this kind. An elementary rule in this connexion is to have a ready-made collection of the theses of the different schools among your propositions. The proper solution here too is to make it clear that the paradox does not result because of the argument ; now your opponent always desires that this should be so.

(d) By questioning him on the tenets of the philosophical school to which he belongs, or his views in general.

Furthermore, you should seek for paradoxes in men's wishes and professed opinions. For they do not wish the same things as they declare that they wish, but they give utterance to the most becoming sentiments, whereas they desire what they think is to their interest. They declare, for example, that a noble death ought to be preferred to a pleasurable life and honourable poverty to discreditable wealth ; but their wishes are the opposite of their words. He, therefore, whose statements agree with his wishes must be led to express the opinions usually professed, and he whose statements agree with the latter must be led to state the opinions usually hidden ; for in both cases they must necessarily fall into paradox, for they will contradict either their professed or their secret opinions.

Πλείστος δὲ τόπος ἐστὶ τοῦ ποιεῖν παράδοξα λέγειν, ὥσπερ καὶ ὁ Καλλικλῆς ἐν τῷ Γοργία γέγραπται λέγων, καὶ οἱ ἀρχαῖοι δὲ πάντες ὥντο
 10 συμβαίνειν, παρὰ τὸ κατὰ φύσιν καὶ κατὰ τὸν νόμον· ἐναντία γὰρ εἶναι φύσιν καὶ νόμον, καὶ τὴν δικαιοσύνην κατὰ νόμον μὲν εἶναι καλὸν κατὰ φύσιν δ' οὐ καλόν. δεῖν οὖν πρὸς μὲν τὸν εἰπόντα κατὰ φύσιν κατὰ νόμον ἀπαντᾶν, πρὸς δὲ τὸν κατὰ νόμον ἐπὶ τὴν φύσιν ἄγειν· ἀμφοτέρως γὰρ ἔσται¹
 15 λέγειν παράδοξα. ἦν δὲ τὸ μὲν κατὰ φύσιν αὐτοῖς τὸ ἀληθές, τὸ δὲ κατὰ νόμον τὸ τοῖς πολλοῖς δοκοῦν. ὥστε δηλὸν ὅτι κἀκεῖνοι, καθάπερ καὶ οἱ νῦν, ἢ ἐλέγξαι ἢ παράδοξα λέγειν τὸν ἀποκρινόμενον ἐπεχείρουν ποιεῖν.

Ἐνια δὲ τῶν ἐρωτημάτων ἔχει ἀμφοτέρως ἄδοξον
 20 εἶναι τὴν ἀπόκρισιν, οἷον πότερον τοῖς σοφοῖς ἢ τῷ πατρὶ δεῖ πείθεσθαι, καὶ τὰ συμφέροντα πράττειν ἢ τὰ δίκαια, καὶ ἀδικεῖσθαι αἰρετώτερον ἢ βλάπτειν. δεῖ δ' ἄγειν εἰς τὰ τοῖς πολλοῖς καὶ τοῖς σοφοῖς ἐναντία, ἐὰν μὲν λέγῃ τις ὡς οἱ περὶ τοὺς λόγους,
 25 εἰς τὰ τοῖς πολλοῖς, ἐὰν δ' ὡς οἱ πολλοί, ἐπὶ τὰ τοῖς ἐν λόγῳ. φασὶ γὰρ οἱ μὲν ἐξ ἀνάγκης τὸν εὐδαίμονα δίκαιον εἶναι· τοῖς δὲ πολλοῖς ἄδοξον τὸ βασιλέα μὴ εὐδαιμονεῖν. ἔστι δὲ τὸ εἰς τὰ οὕτως ἄδοξα συνάγειν τὸ αὐτὸ τῷ εἰς τὴν κατὰ φύσιν καὶ κατὰ νόμον ὑπεναντίωσιν ἄγειν· ὁ μὲν γὰρ νόμος
 30 δόξα τῶν πολλῶν, οἱ δὲ σοφοὶ κατὰ φύσιν καὶ κατ' ἀλήθειαν λέγουσιν.

¹ Reading ἔσται for εἶναι.

^a Plato, *Gorgias* 482 E.

A commonplace rule which makes men utter paradoxes in abundance is the application of the standards of nature and law, which Callicles is represented as applying in the *Gorgias* ^a and which all the ancients regarded as valid ; for according to them Nature and Law are opposites, and justice is a good thing according to law but not according to nature. Therefore, to a man who speaks in terms of nature you must reply in terms of law, and when he speaks in terms of law you must lead the argument to terms of nature ; for in both cases the result will be that he utters paradoxes. In the view of the ancients what accorded with nature was the truth, while what accorded with law was the general opinion of mankind. It is, therefore, clear that they also, like the men of to-day, tried to refute the answerer or to make him utter paradoxes.

Some questions involve a paradox whichever way ^(e) they are answered ; for example, ' Ought one to obey the wise or one's father ? ' and, ' Ought one to do what is expedient or what is just ? ' and ' Is it preferable to suffer or to inflict a wrong ? ' You ought to lead men to opinions opposed to those of the majority and of the wise—if a man speaks as trained arguers do, you should lead him to opinions opposed to the majority ; if he speaks as do the majority, to opinions opposed to expert reasoners. For some say that the happy man is necessarily just, but in the view of the majority it is paradoxical that a king should not be happy. To lead a man to paradoxes of this kind is the same thing as to bring him into opposition to the standards of nature and law ; for law is the opinion of the majority, but the utterances of the wise accord with the standards of nature and truth.

(e) By asking questions, the answers to which must be paradoxical.

173 a

XIII. Καὶ τὰ μὲν παράδοξα ἐκ τούτων δεῖ ζητεῖν τῶν τόπων· περὶ δὲ τοῦ ποιῆσαι ἀδολεσχεῖν, ὃ μὲν λέγομεν τὸ ἀδολεσχεῖν, εἰρήκαμεν ἤδη. πάντες δὲ οἱ τοιοῖδε λόγοι τοῦτο βούλονται ποιεῖν· εἰ μὴδὲν
 35 διαφέρει τὸ ὄνομα ἢ τὸν λόγον εἰπεῖν, διπλάσιον δὲ καὶ διπλάσιον ἡμίσεος ταυτό, εἰ ἄρα ἐστὶν ἡμίσεος διπλάσιον, ἔσται ἡμίσεος ἡμίσεος διπλάσιον. καὶ πάλιν ἂν ἀντὶ τοῦ διπλάσιον διπλάσιον ἡμίσεος τεθῇ, τρεῖς ἔσται εἰρημένον, ἡμίσεος ἡμίσεος ἡμίσεος διπλάσιον. καὶ ἄρα ἐστὶν ἡ ἐπιθυμία ἡδέος; τοῦτο
 40 δ' ἐστὶν ὄρεξις ἡδέος· ἔστιν ἄρα ἡ ἐπιθυμία ὄρεξις ἡδέος ἡδέος.

173 b

Εἰσὶ δὲ πάντες οἱ τοιοῦτοι τῶν λόγων ἓν τε τοῖς πρὸς τι, ὅσα μὴ μόνον τὰ γένη ἀλλὰ καὶ αὐτὰ πρὸς τι λέγεται, καὶ πρὸς τὸ αὐτὸ καὶ ἓν ἀποδίδεται (οἷον ἢ τε ὄρεξις τινὸς ὄρεξις καὶ ἡ ἐπιθυμία τινὸς ἐπιθυμία, καὶ τὸ διπλάσιον τινὸς διπλάσιον καὶ διπλάσιον ἡμίσεος)· καὶ ὅσων ἡ οὐσία οὐκ ὄντων πρὸς τι ὅλως, ὧν εἰσὶν ἕξεις ἢ πάθη ἢ τι τοιοῦτον, ἐν τῷ λόγῳ αὐτῶν προσδηλοῦται κατηγορουμένων ἐπὶ τούτοις. οἷον τὸ περιττὸν ἀριθμὸς μέσον ἔχων· ἔστι δ' ἀριθμὸς περιττός· ἔστιν ἄρα ἀριθμὸς μέσον
 10 ἔχων ἀριθμός. καὶ εἰ τὸ σιμὸν κοιλότης ῥινός ἐστιν, ἔστι δὲ ῥις σιμή, ἔστιν ἄρα ῥις ῥις κοίλη.

Φαίνονται δὲ ποιεῖν οὐ ποιοῦντες ἐνίοτε διὰ τὸ μὴ προσπυνθάνεσθαι εἰ σημαίνει τι καθ' αὐτὸ λεχθὲν

ON SOPHISTICAL REFUTATIONS, XIII

XIII. It is, then, by these commonplace rules that you should seek to obtain paradoxes. Next, as to making people babble, we have already said what we mean by this term.^a Arguments of the following kind all have this end in view; 'If it makes no difference whether one uses the term or the definition of it, and "double" and "double of half" are the same thing, then if "double" is "double of half," it will be "double of half of half"; and if "double of half" be substituted again for "double," there will be a triple repetition, "double of half of half of half."' Again, 'Is not "desire" "desire of pleasure?" Now "desire is an appetite for pleasure": therefore "desire is an appetite for pleasure of pleasure."'

(D) BAB-
BLING.
How this
can be
induced.

All arguments of this kind take place (a) when relative terms are used, where not only the genera but the terms themselves are relative and are rendered in relation to one and the same thing (for example, appetite is appetite for something, and desire is desire of something, and double is double of something, namely, double of half), and (b) where terms are used of which, though they are not relative at all, the substance (namely, the things of which they are states or affections or the like) is indicated in their definition, since they are predicated of these things. For example, 'odd' is a 'number which has a middle unit,' and an 'odd number' exists, therefore an 'odd number' is 'number-that-has-a middle-unit number.' Again, if 'snubness' is 'concavity of the nose,' and there is a 'snub nose,' then a 'snub nose' is a 'concave-nose nose.'

Men sometimes appear to induce 'babbling' when they do not really do so, because they do not further inquire whether 'double' used by itself has a signifi-

173 b

τὸ διπλάσιον ἢ οὐδέν, καὶ εἴ τι σημαίνει, πότερον
 15 τὸ αὐτὸ ἢ ἕτερον, ἀλλὰ τὸ συμπέρασμα λέγειν
 εὐθύς. ἀλλὰ φαίνεται διὰ τὸ τὸ ὄνομα ταὐτὸ εἶναι
 ταὐτὸ καὶ σημαίνειν.

XIV. Σολοικισμὸς δ' οἷον μὲν ἐστὶν εἴρηται πρό-
 τερον. ἔστι δὲ τοῦτο καὶ ποιεῖν καὶ μὴ ποιῶντα
 φαίνεσθαι καὶ ποιῶντα μὴ δοκεῖν, καθάπερ ὁ
 20 Πρωταγόρας ἔλεγεν, εἰ ὁ μῆνις καὶ ὁ πῆληξ ἄρρεν
 ἐστίν· ὁ μὲν γὰρ λέγων οὐλομένην σολοικίζει μὲν
 κατ' ἐκείνον, οὐ φαίνεται δὲ τοῖς ἄλλοις, ὁ δὲ οὐλό-
 μενον φαίνεται μὲν ἄλλ' οὐ σολοικίζει. δῆλον οὖν
 ὅτι καὶ τέχνη τις τοῦτο δύναται ποιεῖν· διὸ πολλοὶ
 τῶν λόγων οὐ συλλογιζόμενοι σολοικισμὸν φαίνον-
 25 ται συλλογίζεσθαι, καθάπερ ἐν τοῖς ἐλέγχοις.

Εἰσὶ δὲ πάντες σχεδὸν οἱ φαινόμενοι σολοικισμοὶ
 παρὰ τὸ τόδε, καὶ ὅταν ἡ πτώσις μήτε ἄρρεν μήτε
 θῆλυ δηλοῖ ἀλλὰ τὸ μεταξύ. τὸ μὲν οὗτος ἄρρεν
 σημαίνει, τὸ δ' αὕτη θῆλυ· τὸ δὲ τοῦτο θέλει μὲν τὸ
 30 μεταξύ σημαίνειν, πολλάκις δὲ σημαίνει κακείνων
 ἐκάτερον, οἷον τί τοῦτο; Καλλιόπη, ξύλον, Κορί-
 σκος. τοῦ μὲν οὖν ἄρρενος καὶ τοῦ θήλεος δια-
 φέρουσιν αἱ πτώσεις ἅπασαι, τοῦ δὲ μεταξύ αἱ μὲν
 αἱ δ' οὔ. δοθέντος δὴ πολλάκις τοῦτο, συλλογί-
 ζονται ὡς εἰρημένου τοῦτον· ὁμοίως δὲ καὶ ἄλλην
 35 πτώσιν ἀντ' ἄλλης. ὁ δὲ παραλογισμὸς γίνεται
 διὰ τὸ κοινὸν εἶναι τὸ τοῦτο πλειόνων πτώσεων·

^a 165 b 20.^b Because it is in fact feminine.

ON SOPHISTICAL REFUTATIONS, XIII-XIV

cation or no, and, if it has, whether the same or a different one, but they appear to draw the conclusion immediately. It appears, however, to have the same signification also because the word is the same.

XIV. What solecism is has already been stated.^a (E) SOLE-
CISM. It is possible to commit it, and not to commit it, How this
yet to seem to do so, as well as to commit it, yet can be
seem not to do so. If, as Protagoras used to say, induced.
μῆνις (wrath) and *πῆληξ* (helmet) are masculine, according to him, he who calls wrath a 'destruc-
tress' (*οὐλομένην*) commits a solecism, though he does not appear to anyone else to do so,^b but he who calls it a 'destructor' (*οὐλόμενον*) appears to commit a solecism but does not do so. It is obvious, therefore, that one might produce this effect by art also; therefore many arguments appear to infer a solecism, when they do not really do so, as happens also with refutations.

Almost all apparent solecisms occur owing to the word 'this' or 'it' (*τόδε*) and when the inflection denotes neither the masculine nor the feminine but the neuter. 'He' (*οὗτος*) denotes a masculine, 'she' (*αὕτη*) a feminine, whereas 'this' or 'it' (*τοῦτο*), though meaning to signify a neuter, often signifies either a masculine or a feminine. For example, 'What is this (*τοῦτο*)?' 'It is Calliope,' or 'It is a log' or 'It is Coriscus.' The case-forms of the masculine and feminine are all different, but some of those of the neuter are different and others not. Often, therefore, when 'it' (*τοῦτο*) has been granted, people argue as if 'him' (*τοῦτον*) had been used, and they similarly use another case in place of some other. The false reasoning arises because 'it' (*τοῦτο*) is common to more than one case; for it signifies

173 b

τὸ γὰρ τοῦτο σημαίνει ὅτε μὲν οὗτος ὅτε δὲ τοῦτον.
 δεῖ δ' ἐναλλάξ σημαίνειν, μετὰ μὲν τοῦ ἔστι τὸ
 οὗτος, μετὰ δὲ τοῦ εἶναι τὸ τοῦτον, οἷον ἔστι
 Κορίσκος, εἶναι Κορίσκον. καὶ ἐπὶ τῶν θηλέων
 40 ὀνομάτων ὡσαύτως, καὶ ἐπὶ τῶν λεγομένων μὲν
 174 a σκευῶν ἐχόντων δὲ θηλείας ἢ ἄρρενος κλήσιν. ὅσα
 γὰρ εἰς τὸ ο καὶ τὸ ν τελευτᾷ, ταῦτα μόνον σκεύους
 ἔχει κλήσιν, οἷον ξύλον, σχοινίον, τὰ δὲ μὴ οὕτως
 ἄρρενος ἢ θήλεος, ὧν ἕνα φέρομεν ἐπὶ τὰ σκεύη,
 5 οἷον ἄσκος μὲν ἄρρεν τοῦνομα, κλίνη δὲ θήλυ.
 διόπερ καὶ ἐπὶ τῶν τοιούτων ὡσαύτως τὸ ἔστι καὶ
 τὸ εἶναι διοίσει. καὶ τρόπον τινὰ ὅμοιός ἐστιν ὁ
 σολοικισμὸς τοῖς παρὰ τὸ τὰ μὴ ὅμοια ὁμοίως
 λεγομένοις ἐλέγχους. ὥσπερ γὰρ ἐκείνοις ἐπὶ τῶν
 πραγμάτων, τούτοις ἐπὶ τῶν ὀνομάτων συμπίπτει
 σολοικίζειν· ἄνθρωπος γὰρ καὶ λευκὸν καὶ πᾶγμα
 καὶ ὄνομα ἐστίν.

10 Φανερόν οὖν ὅτι τὸν σολοικισμόν πειρατέον ἐκ
 τῶν εἰρημένων πτώσεων συλλογίζεσθαι.

Εἶδη μὲν οὖν ταῦτα τῶν ἀγωνιστικῶν λόγων καὶ
 μέρη τῶν εἰδῶν καὶ τρόποι οἱ εἰρημένοι. διαφέρει
 δ' οὐ μικρόν, εἰς ταχθῇ πως τὰ περὶ τὴν ἐρώτησιν
 15 πρὸς τὸ λανθάνειν, ὥσπερ ἐν τοῖς διαλεκτικοῖς.
 ἐφεξῆς οὖν τοῖς εἰρημένοις ταῦτα πρῶτον λεκτέον.

XV. Ἔστι δὴ πρὸς τὸ ἐλέγχειν ἐν μὲν μῆκος·

^a i.e. the fallacy from the figure of speech (*figura dictionis*).

sometimes 'he' (οὗτος) and sometimes 'him' (τοῦτον). It ought to signify them alternately; with the indicative 'is' (ἐστί) it ought to signify the nominative 'he' (οὗτος); with the infinitive 'to be' (εἶναι) it ought to signify 'him' (τοῦτον), for example, 'It is Coriscus,' '[I believe] it to be Coriscus.' So likewise with feminine nouns and with so-called articles of use, which can have either a masculine or a feminine designation; for only those which end in -ον have the designation which belongs to an article of use, e.g., ξύλον (log), σχοινίον (rope). Those which do not take this form have a masculine or a feminine termination, and some of these we apply to articles of use; for example, ἀσκός (wine-skin) is masculine and κλίνη (bed) is feminine. Therefore, in such cases there will be the same difference when the indicative 'is' (ἐστί) is used and the infinitive 'to be' (εἶναι). Also, in a way, solecism resembles the kind of refutation which is due to the use of similar terms for dissimilar things^a; for as in the one case it happens that we commit a solecism in the category of actual things, so in the other we commit it in that of names; for 'man' and 'white' are both names and things.

Clearly, then, we must try and argue up to a solecism on the basis of the above-mentioned case-forms.

These are the branches of competitive arguments and their sub-divisions, and the above are the methods of employing them. Now it makes no small difference whether the accompaniments of the question are arranged in a certain way with a view to concealment, as in dialectics. Therefore, as a sequel to what has been said above, we must first treat of this subject.

XV. To effect a refutation one expedient is length; How to ask

χαλεπὸν γὰρ ἅμα πολλὰ συνορᾶν. εἰς δὲ τὸ μῆκος
 τοῖς προειρημένοις στοιχείοις χρηστέον. ἐν δὲ
 20 τάχος· ὑστερίζοντες γὰρ ἦττον προορῶσιν. ἔτι δ'
 ὀργή καὶ φιλονεικία· ταραττόμενοι γὰρ ἦττον δύ-
 νανται φυλάττεσθαι πάντες. στοιχεῖα δὲ τῆς ὀργῆς
 τό τε φανερόν ἐαυτὸν ποιεῖν βουλόμενον ἀδικεῖν
 καὶ τὸ παράπαν ἀναισχυντεῖν. ἔτι τὸ ἐναλλάξ τὰ
 ἐρωτήματα τιθέναι, εἴν τε πρὸς ταῦτ' οὐκ
 25 ἔχῃ λόγους, εἴν τε καὶ ὅτι οὕτως καὶ ὅτι οὐχ
 οὕτως· ἅμα γὰρ συμβαίνει ἢ πρὸς πλείω ἢ πρὸς
 τᾶναντία ποιεῖσθαι τὴν φυλακὴν. ὅλως δὲ πάντα
 τὰ πρὸς τὴν κρύψιν λεχθέντα πρότερον χρήσιμα
 καὶ πρὸς τοὺς ἀγωνιστικούς λόγους· ἢ γὰρ κρύψις
 ἐστὶ τοῦ λαθεῖν χάριν, τὸ δὲ λαθεῖν τῆς ἀπάτης.
 30 Πρὸς δὲ τοὺς ἀνανεύοντας ἅτ' ἂν οἰηθῶσιν
 εἶναι πρὸς τὸν λόγον, ἐξ ἀποφάσεως ἐρωτητέον,
 ὥς τούναντίον βουλόμενον, ἢ καὶ ἐξ ἴσου ποιοῦντα
 τὴν ἐρώτησιν· ἀδήλου γὰρ ὄντος τοῦ τί βούλεται
 λαβεῖν ἦττον δυσκολαινουσιν. ὅταν τ' ἐπὶ τῶν
 μερῶν διδῶ τις τὸ καθ' ἕκαστον, ἐπάγοντα τὸ
 35 καθόλου πολλάκις οὐκ ἐρωτητέον, ἀλλ' ὥς δεδο-
 μένῳ χρηστέον· ἐνίοτε γὰρ οἷονται καὶ αὐτοὶ δε-
 δωκέναι καὶ τοῖς ἀκούουσι φαίνονται διὰ τὴν τῆς

^a *Topics* viii. 1.

ON SOPHISTICAL REFUTATIONS, xv

for it is difficult to keep many things in view simultaneously. To produce length the above-mentioned elementary rules must be employed. One resource is speed ; for when people lag behind they see less far ahead. Further, there are anger and contentiousness ; for when people are agitated they are always less capable of being on their guard. Elementary rules for rousing anger are to make it plain that one wishes to act unfairly and to behave in an altogether shameless manner. Another device is to put one's questions alternately, whether one has several arguments leading up to the same point or whether one has arguments proving both that this is so and that this is not so ; for the result is that the answerer is on his guard at the same time against either several or contrary attacks. In a word, all the resources for concealment mentioned before ^a are also useful against competitive arguments ; for concealment is for the purpose of escaping detection, and escape from detection is for the purpose of deception.

When dealing with those who refuse to consent to anything which they think is in favour of your argument, you must put your question in a negative form, as though you wanted the opposite of what you really want, or, at any rate, as if you were asking your question with indifference ; for people are less troublesome when it is not clear what one wants to secure. Often, when in dealing with particulars a man grants the individual case, you ought not, in the process of induction, to make the universal the subject of your question but assume that it is granted and use it accordingly ; for sometimes people think that they have themselves granted it and appear to their hearers to have done so, because they recall

questions effectively :
(1) By prolixity and rapidity.

(2) By alternating questions.

(3) By interrogation from negation.

(4) By assuming that the universal has been granted.

174 a

ἐπαγωγῆς μνείαν, ὥς οὐκ ἂν ἡρωτημένα μάτην.
 ἐν οἷς τε μὴ ὀνόματι σημαίνεται τὸ καθόλου, ἀλλὰ
 τῇ ὁμοιότητι χρηστέον πρὸς τὸ συμφέρον· λανθάνει
 40 γὰρ ἡ ὁμοιότης πολλάκις. πρὸς τε τὸ λαβεῖν τὴν

174 b

πρότασιν τούναντίον παραβάλλοντα χρὴ πυνθάνε-
 σθαι. οἷον εἰ δέοι λαβεῖν ὅτι δεῖ πάντα τῷ πατρὶ
 πείθεσθαι, πότερον ἅπαντα δεῖ πείθεσθαι τοῖς γο-
 νεῦσιν ἢ πάντ' ἀπειθεῖν; καὶ τὸ πολλάκις πολλά,
 πότερον πολλὰ συγχωρητέον ἢ ὀλίγα; μᾶλλον γάρ,
 5 εἴπερ ἀνάγκη, δόξειεν ἂν εἶναι πολλά· παραπιθε-
 μένων γὰρ ἐγγὺς τῶν ἐναντίων, καὶ μείζω καὶ
 μεγάλα φαίνεται καὶ χείρω καὶ βελτίω τοῖς ἀνθρώ-
 ποις.

Σφόδρα δὲ καὶ πολλάκις ποιεῖ δοκεῖν ἐληλέγχθαι
 τὸ μάλιστα σοφιστικὸν συκοφάντημα τῶν ἐρωτών-
 10 των, τὸ μηδὲν συλλογισαμένους μὴ ἐρώτημα ποιεῖν
 τὸ τελευταῖον, ἀλλὰ συμπεραντικῶς εἰπεῖν, ὥς
 συλλελογισμένους, οὐκ ἄρα τὸ καὶ τό.

Σοφιστικὸν δὲ καὶ τὸ κειμένου παραδόξου τὸ
 φαινόμενον ἀξιοῦν ἀποκρίνεσθαι προκειμένου τοῦ
 δοκοῦντος ἐξ ἀρχῆς, καὶ τὴν ἐρώτησιν τῶν τοιού-
 15 των οὕτω ποιεῖσθαι, πότερόν σοι δοκεῖ; ἀνάγκη
 γάρ, ἂν ἡ τὸ ἐρώτημα ἐξ ὧν ὁ συλλογισμός, ἢ
 ἔλεγχον ἢ παράδοξον γίνεσθαι, δόντος μὲν ἔλεγχον,

^a Cf. *Topics* 156 b 10 ff.

the process of induction and think that the question would not have been asked without some object. Where there is no term to signify the universal, you should nevertheless use the resemblance of the particulars ^a for your advantage ; for the resemblance often passes unnoticed. Also, in order to secure your premiss, you should contrast it with its contrary in your question. For example, if you want to secure the premiss that one ought to obey one's father in all things, you should ask whether one should obey one's parents in all things or disobey them in all things. If you want to establish that the multiplication of a number many times over results in a large number, you should ask whether it should be conceded that it is a large or that it is a small number ; for, if pressed, one would rather that it should seem to be large. For the juxtaposition of contraries increases the quantity and quality of things, both relatively and absolutely, in the eyes of men.

Often the most sophistical of all frauds practised by questioners produces a striking appearance of refutation, when, though they have proved nothing, they do not put the final proposition in the form of a question but state conclusively, as though they had proved it, that ' such and such a thing, then, is not the case.'

Another sophistical trick is, when the thesis is a paradox, to demand, when the generally accepted view is originally proposed, that the answerer should reply what he thinks about it, and to put one's question in some such form as ' Is that your opinion ? ' For, if the question is one of the premisses of the argument, either a refutation or a paradox must result. If he grants the premiss, there will be a

(5) By assuming that a proposition is effected through comparison of the contrary.

(6) By substituting a statement for a question.

(7) By placing your opponent on the horns of a dilemma.

μὴ δόντος δὲ μηδὲ δοκεῖν φάσκοντος ἄδοξον, μὴ δόντος δὲ δοκεῖν δ' ὁμολογοῦντος ἐλεγχοειδές.

Ἔτι καθάπερ καὶ ἐν τοῖς ῥητορικοῖς, καὶ ἐν τοῖς
 20 ἐλεγκτικοῖς ὁμοίως τὰ ἐναντιώματα θεωρητέον ἢ
 πρὸς τὰ ὑφ' ἑαυτοῦ λεγόμενα, ἢ πρὸς οὓς ὁμολογεῖ
 καλῶς λέγειν ἢ πράττειν, ἔτι πρὸς τοὺς δοκοῦντας
 τοιούτους ἢ πρὸς τοὺς ὁμοίους ἢ πρὸς τοὺς πλεί-
 στους ἢ πρὸς πάντας. ὥσπερ τε καὶ ἀποκρινόμενοι
 πολλάκις, ὅταν ἐλέγχωνται, ποιοῦσι διττόν, ἂν
 25 μέλλῃ συμβαίνειν ἐλεγχθήσεσθαι, καὶ ἐρωτῶντας
 χρηστέον ποτὲ τούτῳ πρὸς τοὺς ἐνισταμένους, ἂν
 ὠδὶ μὲν συμβαίῃ ὠδὶ δὲ μή, ὅτι οὕτως εἴληφεν,
 οἶον ὁ Κλεοφῶν ποιεῖ ἐν τῷ Μανδροβούλῳ. δεῖ δὲ
 καὶ ἀφισταμένους τοῦ λόγου τὰ λοιπὰ τῶν ἐπιχει-
 ρημάτων ἐπιτέμνειν, καὶ τὸν ἀποκρινόμενον, ἂν
 30 προαισθάνηται, προενίστασθαι καὶ προαγορεύειν.
 ἐπιχειρητέον δ' ἐνίοτε καὶ πρὸς ἄλλα τοῦ εἰρημέ-
 νου, ἐκεῖνο ἐκλαβόντας, εἰ μὴ πρὸς τὸ κείμενον
 ἔχῃ τις ἐπιχειρεῖν· ὅπερ ὁ Λυκόφρων ἐποίησε προ-
 βληθέντος λύραν ἐγκωμιάζειν. πρὸς δὲ τοὺς ἀπ-
 αιτοῦντας πρὸς τι ἐπιχειρεῖν, ἐπειδὴ δοκεῖ δεῖν
 35 ἀποδιδόναι τὴν αἰτίαν, λεχθέντων δ' ἐνίων εὐφυ-
 λακτότερον, τὸ καθόλου συμβαῖνον ἐν τοῖς ἐλέγχοις
 λέγειν, τὴν ἀντίφασιν, ὃ τι ἔφησεν ἀποφῆσαι, ἢ ὁ

^a It has been conjectured that the author of this dialogue was Speusippus.

ON SOPHISTICAL REFUTATIONS, xv

refutation ; if he refuses to grant it and even denies that it is the generally accepted view, he utters a paradox ; if he refuses to grant it but admits that it is the generally accepted view, there will be the appearance of a refutation.

Moreover, as in rhetorical arguments, so likewise also in refutations, you ought to look for contradictions between the answerer's views and either his own statements or the views of those whose words and actions he admits to be right, or of those who are generally held to bear a like character and to resemble them, or of the majority, or of all mankind. Also, just as answerers, when they are being refuted, often draw a distinction, if they are on the point of being refuted, so questioners also ought sometimes, when dealing with objectors, if the objection is valid against one sense of the word but not against another, to resort to the expedient of declaring that the opponent has taken it in such and such a sense, as Cleophon does in the *Mandrobulus*.^a They ought also to withdraw from the argument and cut short their other attacks, while the answerer, if he perceives this move in time, should raise anticipatory objections and get his argument in first. One should also sometimes attack points other than the one mentioned, excluding it if one can make no attack on the position laid down, as Lycophron did when it was suggested that he should deliver an encomium on the lyre. To those who demand that one should take some definite point of attack (since it is generally held that one ought to assign the object of a question, whereas if certain statements are made the defence is easier), you should say that your aim is the usual result of refutation, namely, to deny what your opponent

(8) By seeking contradictions between the views of your opponent and the school to which he belongs.

(9) By pleading that a term has a double sense.

(10) By withdrawal from your position to avoid attack.

(11) By attacking irrelevant points.

(12) By maintaining that your object is simply the contradiction of your opponent's thesis.

174 b

ἀπέφησε φῆσαι, ἀλλὰ μὴ ὅτι τῶν ἐναντίων ἢ αὐτὴ ἐπιστήμη ἢ οὐχ ἢ αὐτή. οὐ δεῖ δὲ τὸ συμπέρασμα προτατικῶς ἐρωτᾶν· ἔνια δ' οὐδ' ἐρωτητέον, ἀλλ' ὡς ὁμολογουμένοις¹ χρηστέον.

175 a XVI. Ἐξ ὧν μὲν οὖν αἱ ἐρωτήσεις, καὶ πῶς ἐρωτητέον ἐν ταῖς ἀγωνιστικαῖς διατριβαῖς, εἴρηται· περὶ δὲ ἀποκρίσεως, καὶ πῶς χρὴ λύειν καὶ τί, καὶ πρὸς τίνα χρήσιν οἱ τοιοῦτοι τῶν λόγων ὠφέλιμοι, μετὰ ταῦτα λεκτέον.

5 Χρήσιμοι μὲν οὖν εἰσὶ πρὸς μὲν φιλοσοφίαν διὰ δύο. πρῶτον μὲν γὰρ ὡς ἐπὶ τὸ πολὺ γινόμενοι παρὰ τὴν λέξιν ἄμεινον ἔχειν ποιοῦσι πρὸς τὸ ποσαχῶς ἕκαστον λέγεται, καὶ ποῖα ὁμοίως καὶ ποῖα ἑτέρως ἐπὶ τε τῶν πραγμάτων συμβαίνει καὶ
10 ἐπὶ τῶν ὀνομάτων. δεύτερον δὲ πρὸς τὰς καθ' αὐτὸν ζητήσεις· ὁ γὰρ ὑφ' ἑτέρου ῥαδίως παραλογιζόμενος καὶ τοῦτο μὴ αἰσθανόμενος κἂν αὐτὸς ὑφ' αὐτοῦ τοῦτο πάθῃ πολλάκις. τρίτον δὲ καὶ τὸ λοιπὸν ἔτι πρὸς δόξαν, τὸ περὶ πάντα γεγυμνάσθαι δοκεῖν καὶ μηδενὸς ἀπείρως ἔχειν· τὸ γὰρ
15 κοινωνοῦντα λόγων ψέγειν λόγους, μηδὲν ἔχοντα διορίζειν περὶ τῆς φαυλότητος αὐτῶν, ὑποψίαν δίδωσι τοῦ δοκεῖν δυσχεραίνειν οὐ διὰ τάληθές ἀλλὰ δι' ἀπειρίαν.

Ἀποκρινομένοις δὲ πῶς ἀπαντητέον πρὸς τοὺς τοιούτους λόγους, φανερόν, εἴπερ ὀρθῶς εἰρήκαμεν πρότερον ἐξ ὧν εἰσὶν οἱ παραλογισμοί, καὶ τὰς ἐν
20 τῷ πυκνάνεσθαι πλεονεξίας ἱκανῶς διείλομεν. οὐ ταῦτ' οὖν δ' ἐστὶ λαβόντα τε τὸν λόγον ἰδεῖν καὶ λύσαι τὴν μοχθηρίαν, καὶ ἐρωτώμενον ἀπαντᾶν δύνασθαι

¹ Reading ὁμολογουμένοις with Wallies for ὁμολογουμένῳ.

ON SOPHISTICAL REFUTATIONS, xv-xvi

affirmed and affirm what he denied, and not to prove that the knowledge of contraries is the same or not the same. One should not ask the conclusion in the form of a proposition, and some propositions should not be asked at all but treated as admitted.

XVI. We have now dealt with the sources of questions and how they ought to be asked in competitive arguments. We must next treat of answering, and how solutions are brought about, and what are their subjects, and for what purpose such arguments are useful.

THE
SOLUTION
OF FAL-
LACIES
(chs.
xvi-xxxiii).
General
Remarks.
The reasons
for studying
solutions.

They are useful for philosophy for two reasons. In the first place, as they generally turn on language, they put us in a better position to appreciate the various meanings which a term can have and what similarities and differences attach to things and their names. Secondly, they are useful for the questions which arise in one's own mind ; for he who is easily led astray by another person into false reasoning and does not notice his error, might also often fall into this error in his own mind. A third and last reason is that they establish our reputation, by giving us the credit of having received a universal training and of having left nothing untried ; for that one who is taking part in an argument should find fault with arguments without being able to specify where their weakness lies, rouses a suspicion that his annoyance is apparently not in the interests of truth but due to inexperience.

How answerers should meet such arguments is obvious if we have adequately described above ^a the sources of false arguments and distinguished the fraudulent methods of questioning. To take an argument and see and disentangle the fault in it is not the same thing as to be able to meet it promptly when

The neces-
sity for
practice.

^a 165 b 24 ff.

175 a

ταχέως. ὁ γὰρ ἴσμεν, πολλάκις μετατιθέμενον ἀγ-
νοοῦμεν. ἔτι δ', ὥσπερ ἐν τοῖς ἄλλοις τὸ θᾶπτον καὶ
τὸ βραδύτερον ἐκ τοῦ γεγυμνάσθαι γίνεται μᾶλλον,
25 οὕτω καὶ ἐπὶ τῶν λόγων ἔχει, ὥστε, ἂν δῆλον
μὲν ἡμῖν ἦ, ἀμελέτητοι δ' ὦμεν, ὑστεροῦμεν τῶν
καιρῶν πολλάκις. συμβαίνει δέ ποτε, καθάπερ ἐν
τοῖς διαγράμμασιν· καὶ γὰρ ἐκεῖ ἀναλύσαντες ἐνίοτε
συνθεῖναι πάλιν ἀδυνατοῦμεν· οὕτω καὶ ἐν τοῖς
30 ἐλέγχοις, εἰδότες παρ' ὃ ὁ λόγος συμβαίνει συν-
εῖραι, διαλῦσαι τὸν λόγον ἀποροῦμεν.

XVII. Πρῶτον μὲν οὖν, ὥσπερ συλλογίζεσθαι
φαμεν ἐνδόξως ποτὲ μᾶλλον ἢ ἀληθῶς προαιρεῖσθαι
δεῖν, οὕτω καὶ λυτέον ποτὲ μᾶλλον ἐνδόξως ἢ κατὰ
τάληθές. ὅλως γὰρ πρὸς τοὺς ἐριστικούς μαχε-
35 τέον οὐχ ὡς ἐλέγχοντας ἀλλ' ὡς φαινομένους· οὐ
γάρ φαμεν συλλογίζεσθαί γε αὐτούς, ὥστε πρὸς
τὸ μὴ δοκεῖν διορθωτέον. εἰ γὰρ ἐστὶν ὁ ἔλεγχος
ἀντίφασις μὴ ὁμώνυμος ἐκ τινων, οὐδὲν ἂν δέοι
διαιρεῖσθαι πρὸς τὰμφίβολα καὶ τὴν ὁμωνυμίαν·
οὐ γὰρ ποιεῖ συλλογισμόν. ἀλλ' οὐδενὸς ἄλλου
40 χάριν προσδιαιρετέον ἀλλ' ἢ ὅτι τὸ συμπέρασμα
φαίνεται ἐλεγχοειδές. οὐκ οὖν τὸ ἐλεγχθῆναι ἀλλὰ
τὸ δοκεῖν εὐλαβητέον, ἐπεὶ τό γ' ἐρωτᾶν ἀμφίβολα
175 b καὶ τὰ παρὰ τὴν ὁμωνυμίαν, ὅσαι τ' ἄλλαι τοιαῦται
παρακρούσεις, καὶ τὸν ἀληθινὸν ἔλεγχον ἀφανίζει
καὶ τὸν ἐλεγχόμενον καὶ μὴ ἐλεγχόμενον ἄδηλον
ποιεῖ. ἐπεὶ γὰρ ἔξεστιν ἐπὶ τέλει συμπεραναμένον
88

ON SOPHISTICAL REFUTATIONS, xvi-xvii

one is asked a question.* For we often fail to recognize something which we know when it is presented in a different form. Furthermore, as in other spheres a greater degree of speed or slowness is rather a question of training, so in argument also ; therefore, even though something may be clear to us, yet, if we lack practice, we often miss our opportunities. The same thing happens sometimes as with geometrical diagrams ; for there we sometimes analyse a figure but cannot reconstruct it ; so too in refutations we know how the argument is strung together, but we are at a loss how to take it to pieces.

XVII. In the first place, then, just as we say that we ought sometimes deliberately to argue plausibly rather than truthfully, so too we ought sometimes to solve questions plausibly rather than according to truth. For, generally speaking, when we have to fight against contentious arguers, we ought to regard them not as trying to refute us but as merely appearing to do so ; for we deny that they are arguing a case, so that they must be corrected so as not to appear to be doing so. For if refutation is unequivocal contradiction based on certain premisses, there can be no necessity to make distinctions against ambiguity and equivocation ; for they do not make up the proof. But the only other reason for making further distinctions is because the conclusion looks like a refutation. One must, therefore, beware not of being refuted but of appearing to be so, since the asking of ambiguities and questions involving equivocation and all similar fraudulent artifices mask even a genuine refutation and make it uncertain who is refuted and who is not. For when it is possible in the end, when the conclusion is reached, to say that

Apparent solutions, rather than real, must sometimes be sought.

175 b

5 μὴ ὅπερ ἔφησεν ἀποφῆσαι λέγειν, ἀλλ' ὁμωνύμως,
 εἰ καὶ ὅτι μάλιστ' ἔτυχεν ἐπὶ ταῦτόν φέρων, ἄδηλον
 εἰ ἐλήλεγκται· ἄδηλον γὰρ εἰ ἀληθῆ λέγει νῦν. εἰ
 δὲ διελὼν ἤρετο τὸ ὁμώνυμον ἢ τὸ ἀμφίβολον,
 οὐκ ἂν ἄδηλος ἦν ὁ ἔλεγχος. ὁ τ' ἐπιζητοῦσι νῦν
 μὲν ἦττον πρότερον δὲ μᾶλλον οἱ ἐριστικοί, τὸ ἢ
 10 ναί ἢ οὐ ἀποκρίνεσθαι τὸν ἐρωτώμενον, ἐγίνετ'
 ἄν. νῦν δὲ διὰ τὸ μὴ καλῶς ἐρωτᾶν τοὺς πυνθανο-
 μένους ἀνάγκη προσαποκρίνεσθαι τι τὸν ἐρωτώ-
 μενον, διορθοῦντα τὴν μοχθηρίαν τῆς προτάσεως,
 ἐπεὶ διελομένου γε ἱκανῶς ἢ ναί ἢ οὐ ἀνάγκη λέγειν
 τὸν ἀποκρινόμενον.

15 Εἰ δέ τις ὑπολήψεται τὸν κατὰ ὁμωνυμίαν ἔλεγχον
 εἶναι, τρόπον τινὰ οὐκ ἔσται διαφυγεῖν τὸ ἐλέγ-
 χεσθαι τὸν ἀποκρινόμενον· ἐπὶ γὰρ τῶν ὁρατῶν
 ἀναγκαῖον ὁ ἔφησεν ἀποφῆσαι ὄνομα, καὶ ὁ ἀπ-
 ἔφησε φῆσαι. ὥς γὰρ διορθοῦνταί τινες, οὐδὲν
 20 ὄφελος. οὐ γὰρ Κορίσκον φασὶν εἶναι μουσικόν
 καὶ ἄμουσον, ἀλλὰ τοῦτον τὸν Κορίσκον μουσικόν
 καὶ τοῦτον τὸν Κορίσκον ἄμουσον. ὁ γὰρ αὐτὸς
 ἔσται λόγος τὸ τοῦτον¹ τὸν Κορίσκον τῷ τοῦτον
 τὸν Κορίσκον ἄμουσον εἶναι ἢ μουσικόν· ὅπερ ἅμα
 φησί τε καὶ ἀπόφησιν. ἀλλ' ἴσως οὐ ταῦτὸ ση-
 μαίνει· οὐδὲ γὰρ ἐκεῖ τοῦνομα. ὥστε τί διαφέρει;²

¹ τοῦτον added by Waitz.

² Poste reads τί for τι and adds the question mark.

one's opponent contradicted what he asserted only by means of an equivocation, however true it may be that he happened to be tending in the same direction, it is uncertain whether a refutation has taken place ; for it is uncertain whether he is speaking the truth now. If, however, one had made a distinction and questioned the equivocal or ambiguous term, the refutation would not have been uncertain. Also, the object of contentious arguers—though it is less their aim in these days than formerly—would have been carried out, namely, that the person questioned should answer ' Yes ' or ' No ' ; as it is, however, because the questioners put their questions improperly, the person questioned is obliged to add something in his answer by way of correcting the unfairness of the proposition, since, if the questioner makes adequate distinctions, the answerer must say either ' Yes ' or ' No.'

If anyone is going to imagine that an argument which rests on equivocal terms is a refutation, it will be impossible for the answerer to avoid being refuted in a certain sense ; for in dealing with visible things one must necessarily deny the term which he asserted and assert that which he denied. For the correction which some people suggest is useless. For they do not say that Coriscus is musical and unmusical, but that *this* Coriscus is musical and *this* Coriscus is unmusical. For it will be making use of the same expression to say that *this* Coriscus is unmusical (or musical) as to say that *this* Coriscus is so ; and one is affirming and denying this at the same time. But perhaps it does not mean the same thing ; for neither did the name in the former case ; so what is the difference ? But if he is going to assign to the

If one supposes that an argument which rests on equivocation is a refutation, the answerer cannot escape being in a sense refuted.

175 b

25 εἰ δὲ τῷ μὲν τὸ ἀπλῶς λέγειν Κορίσκον ἀποδώσει, τῷ δὲ προσθήσει τὸ τινὰ ἢ τόνδε, ἄτοπον· οὐδὲν γὰρ μᾶλλον θατέρω· ὁποτέρω γὰρ ἂν οὐδὲν διαφέρει.

Οὐ μὲν ἄλλ' ἐπειδὴ ἄδηλος μὲν ἐστὶν ὁ μὴ διορισάμενος τὴν ἀμφιβολίαν πότερον ἐλήλεγκται ἢ οὐκ
30 ἐλήλεγκται, δέδοται δ' ἐν τοῖς λόγοις τὸ διελεῖν, φανερόν ὅτι τὸ μὴ διορίσαντα δοῦναι τὴν ἐρώτησιν ἄλλ' ἀπλῶς ἀμάρτημά ἐστιν, ὥστε καὶ εἰ μὴ αὐτός, ἄλλ' ὅ γε λόγος ἐληλεγμένῳ ὁμοίος ἐστὶν. συμβαίνει μέντοι πολλάκις ὁρῶντας τὴν ἀμφιβολίαν ὀκνεῖν διαιρεῖσθαι διὰ τὴν πυκνότητα τῶν τὰ τοι-
35 αῦτα προτεινόντων, ὅπως μὴ πρὸς ἅπαν δοκῶσι δυσκολαίνειν· εἴτ' οὐκ ἂν οἰηθέντων παρὰ τοῦτο γενέσθαι τὸν λόγον, πολλάκις ἀπήντησε παράδοξον. ὥστ' ἐπειδὴ δέδοται διαιρεῖν, οὐκ ὀκνητέον, καθάπερ ἐλέχθη πρότερον.

Εἰ δὲ τὰ δύο ἐρωτήματα μὴ ἐν ποιεῖ τις ἐρώτημα,
40 οὐδ' ἂν ὁ παρὰ τὴν ὁμωνυμίαν καὶ τὴν ἀμφιβολίαν ἐγένετο παραλογισμός, ἄλλ' ἢ ἔλεγχος ἢ οὐ. τί
178 a γὰρ διαφέρει ἐρωτῆσαι εἰ Καλλίας καὶ Θεμιστοκλῆς μουσικοὶ εἰσιν ἢ εἰ ἀμφοτέροις ἐν ὄνομα ἦν ἑτέροις οὖσιν; εἰ γὰρ πλείω δηλοῖ ἑνός, πλείω ἡρώτησεν. εἰ οὖν μὴ ὀρθὸν πρὸς δύο ἐρωτήσεις μίαν ἀπόκρισιν ἀξιοῦν λαμβάνειν ἀπλῶς, φανερόν ὅτι οὐδενὶ προσ-
5 ἥκει τῶν ὁμωνύμων ἀποκρίνεσθαι ἀπλῶς, οὐδ' εἰ
92

ON SOPHISTICAL REFUTATIONS, xvii

one person the simple appellation 'Coriscus,' while to the other he adds 'a certain' or 'that,' it is absurd ; for the addition belongs no more to the one than to the other ; for it makes no difference to whichever of the two he adds it.

However, since, if one does not distinguish the meanings of a doubtful term, it is not clear whether he has been confuted or not, and since the right to draw distinctions is conceded in arguments, it is obvious that to grant the question simply, without making distinctions, is a mistake ; so that, even if the man himself does not appear to be refuted, yet his argument certainly appears to be so. It frequently happens, however, that, though people see the ambiguity, they hesitate to make the distinction, because of the numerous occasions on which people propose subjects of this kind, in order to avoid seeming to be acting perversely all the time. Then, again, though people would never have thought that the argument would hinge upon this point, they are often confronted with a paradox. So, since the right to draw a distinction is conceded, we must not hesitate to use it, as was said before.

The ambiguity must be explained.

If one does not make two questions into one, the fallacy which depends on equivocation and ambiguity would not exist either, but either refutation or absence of refutation. For what is the difference between asking whether Callias and Themistocles are musical and asking the same question about two people both with the same name ? For if one indicates more things than one, one has asked more questions than one. If, therefore, it is not correct to demand simply to receive one answer to two questions, clearly it is not proper to give a simple answer to any equivocal

The questioner by ambiguity makes two questions into one.

κατὰ πάντων ἀληθές, ὥσπερ ἀξιουσί τινες. οὐδὲν
 γὰρ τοῦτο διαφέρει ἢ εἰ ἤρετο, Κορίσκος καὶ
 Καλλίας πότερον οἴκοι εἰσὶν ἢ οὐκ οἴκοι, εἴτε παρόν-
 των ἀμφοῖν εἴτε μὴ παρόντων· ἀμφοτέρως γὰρ
 πλείους αἱ προτάσεις· οὐ γὰρ εἰ ἀληθές εἶπεν,¹ διὰ
 10 τοῦτο μία ἡ ἐρώτησις. ἐγχωρεῖ γὰρ καὶ μυρία
 ἕτερα ἐρωτηθέντα ἐρωτήματα ἅπαντα ἢ ναὶ ἢ οὐ
 ἀληθές εἶναι λέγειν· ἀλλ' ὅμως οὐκ ἀποκριτέον μιᾷ
 ἀποκρίσει· ἀναιρεῖται γὰρ τὸ διαλέγεσθαι. τοῦτο
 δ' ὅμοιον ὡς εἰ καὶ τὸ αὐτὸ ὄνομα τεθείη τοῖς
 ἐτέροις. εἰ οὖν μὴ δεῖ πρὸς δύο ἐρωτήσεις μίαν
 15 ἀπόκρισιν διδόναι, φανερόν ὅτι οὐδ' ἐπὶ τῶν ὁμ-
 ωνύμων τὸ ναὶ ἢ οὐ λεκτέον. οὐδὲ γὰρ ὁ εἰπὼν
 ἀποκέκριται ἀλλ' εἴρηκεν. ἀλλ' ἀξιούται² πῶς ἐν
 τοῖς διαλεγομένοις διὰ τὸ λανθάνειν τὸ συμβαῖνον.

Ὡσπερ οὖν εἶπομεν, ἐπειδήπερ οὐδ' ἔλεγχοί
 20 τινες ὄντες δοκοῦσιν εἶναι, κατὰ τὸν αὐτὸν τρόπον
 καὶ λύσεις δόξουσιν εἶναί τινες οὐκ οὔσαι λύσεις·
 ἃς δὴ φάμεν ἐνίοτε μᾶλλον δεῖν φέρειν ἢ τὰς ἀλη-
 θεῖς ἐν τοῖς ἀγωνιστικοῖς λόγοις καὶ τῇ πρὸς τὸ
 διττὸν ἀπαντήσῃ. ἀποκριτέον δ' ἐπὶ μὲν τῶν
 δοκούντων τὸ ἔστω λέγοντα· καὶ γὰρ οὕτως ἥκιστα
 25 γίνονται ἂν παρεξέλεγχος· ἂν δέ τι παράδοξον ἀναγ-
 κάζηται λέγειν, ἐνταῦθα μάλιστα προσθετέον τὸ
 δοκεῖν· οὕτω γὰρ ἂν οὐτ' ἔλεγχος οὔτε παράδοξον
 γίνεσθαι δόξειεν. ἐπεὶ δὲ πῶς αἰτεῖται τὸ ἐν ἀρχῇ

¹ Reading εἶπεν for εἰπεῖν.

² Reading ἀξιούται for ἀξιοῦνται with Wallies.

question, even though the term is true of all the subjects, as some people claim that one ought. For this is just the same as asking 'Are Coriscus and Callias at home or not at home?', whether they are both at home or not there; for in both cases the number of propositions is more than one. For if the answer is true, it does not follow that the question is a single one. For it is possible that it is true to say 'yes' or 'no' when asked a countless number of questions; but, for all that, one ought not to answer them with a single reply, for that means the ruin of discussion. This resembles the case of the same name being applied to different things. If, therefore, one must not give one answer to two questions, it is obvious that neither should one say 'yes' or 'no' where equivocal terms are used; for then the speaker has not given an answer but made a statement, but it is regarded in a way as an answer amongst those who argue, because they do not realize what is the result.

As we said, then, since there are some seeming refutations which are not really refutations, in like manner also there are some seeming solutions which are not really solutions. These we say that we ought sometimes to bring forward in preference to true refutations in competitive argument and in meeting ambiguity. In the case of statements which appear to be true one must answer with the phrase 'granted'; for then there is the least likelihood of any accessory refutation; but if one is obliged to say something paradoxical, then in particular one must add that it seems so, for then there can be no appearance either of refutation or of paradox. Since it is clear what 'begging the original question' means and since

How the
reply is to
be made.

176 a

δηλον, οἷονται δὲ πάντες, ἂν¹ ἢ σύνεγγυς, ἀναιρε-
 τέον καὶ μὴ συγχωρητέον εἶναι ἔνια ὡς τὸ ἐν ἀρχῇ
 30 αἰτοῦντος, ὅταν τὸ² τοιοῦτον ἀξιοῖ τις ὁ ἀναγκαῖον
 μὲν συμβαίνειν ἐκ τῆς θέσεως, ἢ δὲ ψεύδος ἢ ἄδοξον,
 ταῦτὸ λεκτέον· τὰ γὰρ ἐξ ἀνάγκης συμβαίνοντα
 τῆς αὐτῆς εἶναι δοκεῖ θέσεως. ἔτι ὅταν τὸ καθόλου
 μὴ ὀνόματι ληφθῇ ἀλλὰ παραβολῇ, λεκτέον ὅτι οὐχ
 35 ὡς ἐδόθη οὐδ' ὡς προὔτεινε λαμβάνει· καὶ γὰρ
 παρὰ τοῦτο γίνεται πολλάκις ἔλεγχος.

Ἐξειργόμενον δὲ τούτων ἐπὶ τὸ μὴ καλῶς δε-
 δείχθαι πορευτέον, ἀπαντῶντα κατὰ τὸν εἰρημένον
 διορισμόν.

Ἐν μὲν οὖν τοῖς κυρίως λεγομένοις ὀνόμασιν
 ἀνάγκη ἀποκρίνεσθαι ἢ ἀπλῶς ἢ διαιρούμενον. ἃ
 40 δὲ συνυπονοοῦντες τίθεμεν, οἷον ὅσα μὴ σαφῶς
 176 b ἀλλὰ κολοβῶς ἐρωτᾶται, παρὰ τοῦτο συμβαίνει
 ὁ ἔλεγχος, οἷον ἂρ' ὁ ἂν ἢ Ἀθηναίων, κτήμᾳ ἐστὶν
 Ἀθηναίων; ναί. ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων.
 ἀλλὰ μὴν ὁ ἄνθρωπος ἐστὶ τῶν ζώων; ναί. κτήμα
 ἄρα ὁ ἄνθρωπος τῶν ζώων. τὸν γὰρ ἄνθρωπον
 5 τῶν ζώων λέγομεν, ὅτι ζῶόν ἐστι, καὶ Λύσανδρον
 τῶν Λακώνων, ὅτι Λάκων. δηλον οὖν ὡς ἐν οἷς
 ἀσαφὲς τὸ προτεινόμενον οὐ συγχωρητέον ἀπλῶς.

Ὅταν δὲ δυοῖν ὄντοιιν θατέρου μὲν ὄντος ἐξ

¹ Reading ἂν for ἄν with Wallies.

² Reading τὸ for τε with Wallies.

ON SOPHISTICAL REFUTATIONS, xvii

people always consider that assumptions which lie near the conclusion must be demolished and that some of them must not be conceded on the ground that the opponent is begging the question, so when someone claims something of such a nature that it must necessarily follow from the thesis and it is false or paradoxical, we must use the same plea ; for the necessary consequences are generally regarded as part of the same thesis. Furthermore, when the universal which has been obtained has no name but is indicated by a comparison only, we must say that the questioner takes it not in the sense in which it was granted nor as he proposed it ; for a refutation often hinges on this point too.

When we are excluded from these expedients, we must have recourse to the plea that the argument has not been properly set forth, attacking it on the basis of the classification of fallacies given above.^a

When terms are used in their proper senses, one must answer either simply or by making a distinction. It is when our statement implies our meaning without expressing it—for example, when a question is not asked clearly but in a shortened form—that refutation ensues. For instance, ‘Is whatever belongs to the Athenians a property of the Athenians?’ ‘Yes; and this is likewise true of everything else.’ ‘Well, then, does man belong to the animals?’ ‘Yes.’ ‘Then man is a property of the animals. For we say that man “belongs to” the animals because he is an animal, just as we say that Lysander “belongs to” the Lacedæmonians because he is a Lacedæmonian.’ Obviously, therefore, when the premiss is not clear, it must not be conceded simply.

What is obscure in an argument must not be simply conceded.

When it is generally held that, if one of two things Other de-

176 b

ἀνάγκης θάτερον εἶναι δοκῇ, θατέρου δὲ τοῦτο μὴ
 10 ἐξ ἀνάγκης, ἐρωτώμενον πότερον¹ δεῖ τὸ ἔλαττον
 διδόναι· χαλεπώτερον γὰρ συλλογίσασθαι ἐκ πλειό-
 νων. εἰάν δ' ἐπιχειρῇ ὅτι τῷ μὲν ἐστὶν ἐναντίον
 τῷ δ' οὐκ ἔστιν, ἂν ὁ λόγος ἀληθῆς ᾗ, ἐναντίον
 φάναι, ὄνομα δὲ μὴ κείσθαι τοῦ ἑτέρου.

Ἐπεὶ δ' ἔνια μὲν ὦν λέγουσιν οἱ πολλοὶ τὸν μὴ
 15 συγχωροῦντα ψεύδεσθαι ἂν φαῖεν ἔνια δ' οὐ, οἷον
 ὅσα ἀμφιδοξοῦσιν (πότερον γὰρ φθαρτὴ ἢ ἀθάνατος
 ἢ ψυχὴ τῶν ζώων, οὐ διώριστα τοῖς πολλοῖς), ἐν
 οἷς οὖν ἄδηλον ποτέρως εἴωθε λέγεσθαι τὸ προ-
 τεινόμενον, πότερον ὥς αἱ γινώμαι (καλοῦσι γὰρ
 γνώμας καὶ τὰς ἀληθεῖς δόξας καὶ τὰς ὅλας ἀποφά-
 20 σεις), ἢ ὥς ἡ διάμετρος ἀσύμμετρος, ἔτι τε² οὗ
 τὰληθές ἀμφιδοξεῖται, μάλιστα μεταφέρων ἂν τις
 λανθάνοι τὰ ὀνόματα περὶ τούτων. διὰ μὲν γὰρ τὸ
 ἄδηλον εἶναι ποτέρως ἔχει τὰληθές, οὐ δόξει σοφί-
 ζεσθαι, διὰ δὲ τὸ ἀμφιδοξεῖν οὐ δόξει ψεύδεσθαι·
 25 ἢ γὰρ³ μεταφορὰ ποιήσῃ τὸν λόγον ἀνεξέλεγκτον.

Ἐτι ὅσα ἂν τις προαισθάνηται τῶν ἐρωτημάτων,
 προενστατέον καὶ προαγορευτέον· οὕτω γὰρ ἂν
 μάλιστα τὸν πυνθανόμενον κωλύσειεν.

¹ Reading πότερον for πρότερον.

² Inserting τε after ἐτι.

³ Reading γὰρ for δὲ with AB.

ON SOPHISTICAL REFUTATIONS, xvii

is true, then the other is necessarily true, but, if the second is true, the first is not necessarily true, when asked which is true, we ought to concede the less inclusive ; for the greater the number of premisses, the more difficult it is to draw a conclusion. If the disputant tries to establish that A has a contrary while B has not, if his contention is true, we ought to say that both have a contrary but that no name is laid down for one of the two. vices to be employed.

Regarding some of the statements which they make, most people would declare that anyone who did not concede them was lying, while they would not say so about others, for example, about subjects on which people disagree (for instance, most people have no decided opinion whether the soul of living creatures is destructible or immortal). Therefore, when it is uncertain in which sense the suggested premiss is generally used, whether as maxims are employed (for people call both true opinions and general affirmations by the name of 'maxims') or like the statement, 'the diagonal of a square is incommensurate with its sides,' and further, where the truth is a matter of uncertainty,—in these cases one has an excellent opportunity of changing the terms without being found out. For, because it is uncertain in which sense the premiss bears its true meaning, one will not be regarded as playing the sophist, and, because of the disagreement on the subject, one will not be regarded as lying ; for the change will make the argument proof against refutation.

Furthermore, whenever one foresees any question, one must be the first to make one's objection and say what one has to say, for thus one can best disconcert the questioner.

XVIII. Ἐπεὶ δ' ἐστὶν ἡ μὲν ὀρθὴ λύσις ἐμφά-
 30 νισις ψευδοῦς συλλογισμοῦ, παρ' ὅποιαν ἐρώτησιν
 συμβαίνει τὸ ψεῦδος, ὁ δὲ ψευδὴς συλλογισμὸς
 λέγεται διχῶς (ἢ γὰρ εἰ συλλελόγισται ψεῦδος, ἢ
 εἰ μὴ ὧν συλλογισμὸς δοκεῖ εἶναι συλλογισμὸς),
 εἴη ἂν ἡ τε εἰρημένη νῦν λύσις καὶ ἡ τοῦ φαινο-
 μένου συλλογισμοῦ παρὰ τί φαίνεται τῶν ἐρωτη-
 35 μάτων διόρθωσις. ὥστε συμβαίνει τῶν λόγων τοὺς
 μὲν συλλελογισμένους ἀνελόντα, τοὺς δὲ φαινο-
 μένους διελόντα λύειν. πάλιν δ' ἐπεὶ τῶν συλλε-
 λογισμένων λόγων οἱ μὲν ἀληθὲς οἱ δὲ ψεῦδος
 ἔχουσι τὸ συμπέρασμα, τοὺς μὲν κατὰ τὸ συμ-
 πέρασμα ψευδεῖς διχῶς ἐνδέχεται λύειν· καὶ γὰρ
 40 τῷ ἀνελεῖν τι τῶν ἡρωτημένων, καὶ τῷ δεῖξαι τὸ
 177 a συμπέρασμα ἔχον οὐχ οὕτως· τοὺς δὲ κατὰ τὰς
 προτάσεις τῷ ἀνελεῖν τι μόνον· τὸ γὰρ συμπέρασμα
 ἀληθές. ὥστε τοῖς βουλομένοις λύειν λόγον πρῶτον
 μὲν σκεπτέον εἰ συλλελόγισται ἢ ἀσυλλόγιστος,
 εἴτα πότερον ἀληθὲς τὸ συμπέρασμα ἢ ψεῦδος,
 5 ὅπως ἢ διαιροῦντες ἢ ἀναιροῦντες λύωμεν, καὶ
 ἀναιροῦντες ἢ ὧδε ἢ ὧδε, καθάπερ ἐλέχθη πρότερον.
 διαφέρει δὲ πλείστον ἐρωτώμενόν τε καὶ μὴ λύειν
 λόγον· τὸ μὲν γὰρ προῖδεῖν χαλεπόν, τὸ δὲ κατὰ
 σχολὴν ἰδεῖν ῥᾶον.

XIX. Τῶν μὲν οὖν παρὰ τὴν ὁμωνυμίαν καὶ τὴν
 10 ἀμφιβολίαν ἐλέγχων οἱ μὲν ἔχουσι τῶν ἐρωτημάτων
 τι πλείω σημαῖνον, οἱ δὲ τὸ συμπέρασμα πολλαχῶς

^a In ch. xvii.^b 176 b 36 ff.

ON SOPHISTICAL REFUTATIONS, XVIII-XIX

XVIII. Since a correct solution is an exposure of false reasoning, indicating the nature of the question on which the fallacy hinges, and since 'false reasoning' can mean one of two things (for it occurs either if a false conclusion has been reached or if what is not a proof appears to be such), there must be both the solution described just now,^a and also the rectification of the apparent proof by showing on which of the questions it hinges. The result is that one solves the correctly reasoned arguments by demolishing them, the apparent reasonings by making distinctions. Again, since some correctly reasoned arguments are true, while others are false, in their conclusions, it is possible to solve those which are false in their conclusion in two ways, either by demolishing one of the questions or by showing that the conclusion is not as stated. Those arguments, on the other hand, which are false in their premisses can only be solved by the demolition of one of the premisses, since the conclusion is true. Those, therefore, who wish to solve an argument should observe, firstly, whether it has been correctly reasoned or is not reasoned, and, next, whether the conclusion is true or false, in order that we may achieve a solution either by making a distinction or by demolishing a premiss and doing so in one or other of the two ways just described.^b There is a very wide difference between solving an argument when one is being questioned and when one is not; for in the latter case it is difficult to see what is coming, but when one is at leisure it is easier to see one's way.

XIX. Of the refutations which hinge upon equivocation and ambiguity some involve a question which bears more than one sense, while others have

Genuine
solution.

(A) The
Solution of
REFUTA-
TIONS (chs.
xix-xxxii).

177 a

λεγόμενον, οἷον ἐν μὲν τῷ σιγῶντα λέγειν τὸ συμ-
 πέρασμα διττόν, ἐν δὲ τῷ μὴ συνεπίστασθαι τὸν
 ἐπιστάμενον ἐν τῶν ἐρωτημάτων ἀμφίβολον. καὶ
 τὸ διττόν ὅτε μὲν ἔστιν, ὅτε δ' οὐκ ἔστιν, ἀλλὰ
 15 σημαίνει τὸ διττόν τὸ μὲν ὄν τὸ δ' οὐκ ὄν.

“Ὅσοις μὲν οὖν ἐν τῷ τέλει τὸ πολλαχῶς, ἂν μὴ
 προλάβῃ¹ τὴν ἀντίφασιν, οὐ γίνεται ἔλεγχος, οἷον
 ἐν τῷ τὸν τυφλὸν ὁρᾶν· ἄνευ γὰρ ἀντιφάσεως οὐκ
 ἦν ἔλεγχος. ὅσοις δ' ἐν τοῖς ἐρωτήμασιν, οὐκ
 20 ἀνάγκη προαποφῆσαι τὸ διττόν· οὐ γὰρ πρὸς τοῦτο
 ἀλλὰ διὰ τοῦτο ὁ λόγος. ἐν ἀρχῇ μὲν οὖν τὸ
 διπλοῦν καὶ ὄνομα καὶ λόγον οὕτως ἀποκριτέον,
 ὅτι ἔστιν ὥς, ἔστι δ' ὥς οὐ, ὥσπερ τὸ σιγῶντα
 λέγειν, ὅτι ἔστιν ὥς, ἔστι δ' ὥς οὐ. καὶ τὰ δέοντα
 πρακτέον ἔστιν αῖ, ἔστι δ' αῖ οὐ· τὰ γὰρ δέοντα
 25 λέγεται πολλαχῶς. ἐὰν δὲ λάθῃ, ἐπὶ τέλει προστι-
 θέντα τῇ ἐρωτήσῃ διορθωτέον· ἄρ' ἔστι σιγῶντα
 λέγειν; οὐ, ἀλλὰ τόνδε σιγῶντα. καὶ ἐν τοῖς
 ἔχουσι δὲ τὸ πλεοναχῶς ἐν ταῖς προτάσεσιν ὁμοίως.
 οὐκ ἄρα συνεπίστανται ὅ τι ἐπίστανται; ναί, ἀλλ'
 οὐχ οἱ οὕτως ἐπιστάμενοι· οὐ γὰρ ταυτόν ἐστιν ὅτι

¹ Reading προλάβῃ with B.

ON SOPHISTICAL REFUTATIONS, XIX

a conclusion which can bear several meanings ; for example, in the argument about ' the speech of the silent,' the conclusion has a double meaning, and in the argument that ' a man who knows is not conscious of what he knows,' one of the questions involves ambiguity. Also, that which has a double meaning is sometimes true and sometimes false, the term ' double ' signifying that which is partly true and partly untrue.

(a) *Those dependent on diction :* (chs. xix-xxiii).
(1) *Equivocation.*

When the diversity of meaning occurs in the conclusion, no refutation takes place, unless the questioner secures a contradiction beforehand, as, for example, in the argument about the ' seeing of the blind ' ; for there never was refutation without contradiction. Where the diversity of meaning occurs in the questions, there is no need to deny the ambiguity beforehand ; for the argument is not directed towards it as a conclusion but carried on by means of it. At the beginning, therefore, one ought to reply to an ambiguous term or expression in the following manner, that ' in one sense it is so and in another it is not so ' ; for example ' the speaking of the silent ' is possible in one sense but not in another. Or again, ' what needs must is to be done sometimes and not at other times ' ; for the term ' what needs must ' can bear several meanings. If one does not notice the ambiguity, one should make a correction at the end by adding to the questioning : ' Is the speaking of the silent possible ? ' ' No, but speaking of this particular man when he is silent is possible.' So likewise also where the variety of meaning is contained in the premisses : ' Are not people conscious of what they know ? ' ' Yes, but not those who know in this particular way ' ; for it is not the same thing

(2) *Ambiguity.*

177 a

30 οὐκ ἔστι συνεπίστασθαι καὶ ὅτι τοὺς ὠδὶ ἐπιστα-
 μένους οὐκ ἔστιν. ὅλως τε μαχετέον, ἂν καὶ
 ἀπλῶς συλλογίζεται, ὅτι οὐχ ὁ ἔφησεν ἀπέφησε
 πρᾶγμα, ἀλλ' ὄνομα· ὥστ' οὐκ ἔλεγχος.

XX. Φανερόν δὲ καὶ τοὺς παρὰ τὴν διαίρεσιν
 καὶ σύνθεσιν πῶς λυτέον· ἂν γὰρ διαιρούμενος καὶ
 35 συντιθέμενος ὁ λόγος ἕτερον σημαίνει, συμπεραينو-
 μένου τοῦναντίον λεκτέον. εἰσὶ δὲ πάντες οἱ τοι-
 οῦτοι λόγοι παρὰ τὴν σύνθεσιν ἢ διαίρεσιν. ἄρ'
 ᾧ εἶδες σὺ τοῦτον τυπτόμενον, τούτῳ ἐτύπτετο
 οὗτος; καὶ ᾧ ἐτύπτετο, τούτῳ σὺ εἶδες; ἔχει
 177 b μὲν οὖν τι κακὸν τῶν ἀμφιβόλων ἐρωτημάτων, ἀλλ'
 ἔστι παρὰ σύνθεσιν. οὐ γάρ ἐστι διττὸν τὸ παρὰ
 τὴν διαίρεσιν (οὐ γὰρ ὁ αὐτὸς λόγος γίνεται διαιρού-
 μενος), εἴπερ μὴ καὶ τὸ ὅρος καὶ ὅρος τῇ προσωδία
 λεχθὲν σημαίνει ἕτερον. (ἀλλ' ἐν μὲν τοῖς γεγραμ-
 5 μένοις ταῦτόν ὄνομα, ὅταν ἐκ τῶν αὐτῶν στοιχείων
 γεγραμμένον ἦ καὶ ὡσαύτως, κακεῖ δ' ἤδη παρά-
 σημα ποιοῦνται, τὰ δὲ φθεγγόμενα οὐ ταῦτά.) ὥστ'
 οὐ διττὸν τὸ παρὰ διαίρεσιν. φανερόν δὲ καὶ ὅτι
 οὐ πάντες οἱ ἔλεγχοι παρὰ τὸ διττόν, καθάπερ
 τινὲς φασιν.

10 Διαιρετέον οὖν τῷ ἀποκρινομένῳ· οὐ γὰρ ταῦτόν

^a In both examples the meaning can be either 'with a stick' or 'with your eyes.'

^b i.e. breathings and accents.

ON SOPHISTICAL REFUTATIONS, XIX-XX

to say that it is not possible for those who know to be conscious of what they know and that those who know in a particular way cannot be conscious of their knowledge. Generally speaking, too, even though one's opponent argues in a straightforward manner, one must contend that what he has contradicted is not the actual fact which one affirmed but merely its name, and so there is no refutation.

XX. It is evident, too, how fallacies which turn on the division and combination of words should be solved; for, if the expression signifies something different when it is divided and when it is combined, when the opponent is drawing his conclusion we must take the words in the contrary sense. All such expressions as the following turn upon the combination or division of words: 'Was so-and-so being beaten with that with which you saw him being beaten?' and 'Did you see him being beaten with that with which he was being beaten?'^a The argument here has something of the fallacy due to ambiguous questions, but it actually turns on combination. For what turns on the division of words is not really ambiguous (for the expression when divided differently is not the same), unless indeed *ōpos* and *ōpos*, pronounced according to the breathing, constitute a single word with different meanings. (In written language a word is the same when it is written with the same letters and in the same manner, though people now put in additional signs,^b but the words when spoken are not the same.) Therefore an expression whose meaning turns on division is not ambiguous, and it is clear also that all refutations do not turn upon ambiguity, as some people say.

It is for the answerer to make the division; for

(3) Ambiguous division, and (4) ambiguous combination of words.

ἰδεῖν τοῖς ὀφθαλμοῖς τυπτόμενον καὶ τὸ φάναι ἰδεῖν
 τοῖς ὀφθαλμοῖς τυπτόμενον. καὶ ὁ Εὐθυδήμου δὲ
 λόγος, ἅρ' οἶδας σὺ νῦν οὐσας ἐν Πειραιεὶ τριήρεις
 ἐν Σικελίᾳ ὦν; καὶ πάλιν, ἅρ' ἔστιν ἀγαθὸν ὄντα
 15 σκυτέα μοχθηρὸν εἶναι; εἴη δ' ἂν τις ἀγαθὸς ὦν
 σκυτεὺς μοχθηρός· ὥστ' ἔσται ἀγαθὸς σκυτεὺς
 μοχθηρός. ἅρ' ὦν αἱ ἐπιστῆμαι σπουδαῖαι, σπου-
 दाῖα τὰ μαθήματα; τοῦ δὲ κακοῦ σπουδαῖον τὸ
 μάθημα· σπουδαῖον ἄρα μάθημα τὸ κακόν. ἀλλὰ
 μὴν καὶ κακὸν καὶ μάθημα τὸ κακόν, ὥστε κακὸν
 μάθημα τὸ κακόν. ἀλλ' ἔστι κακῶν σπουδαῖα ἐπι-
 20 στήμη. ἅρ' ἀληθὲς εἰπεῖν νῦν ὅτι σὺ γέγονας;
 γέγονας ἄρα νῦν. ἢ ἄλλο σημαίνει διαιρεθέν; ἀλη-
 θὲς γὰρ εἰπεῖν νῦν ὅτι σὺ γέγονας, ἀλλ' οὐ νῦν
 γέγονας. ἅρ' ὥς δύνασαι καὶ ἃ δύνασαι, οὕτως
 καὶ ταῦτα ποιήσῃς ἂν; οὐ καθαρίζων δ' ἔχεις
 δύναμιν τοῦ καθαρίζειν· καθαρίσῃς ἂν ἄρα οὐ καθαρί-
 25 ζων. ἢ οὐ τούτου ἔχει τὴν δύναμιν τοῦ οὐ καθαρί-
 ζων καθαρίζειν, ἀλλ' ὅτε οὐ ποιεῖ, τοῦ ποιεῖν;

Λύουσι δέ τινες τοῦτον καὶ ἄλλως. εἰ γὰρ ἔδωκεν
 ὥς δύναται ποιεῖν, οὐ φασι συμβαίνειν μὴ καθαρί-
 ζοντα καθαρίζειν· οὐ γὰρ πάντως ὥς δύναται ποιεῖν,
 30 δεδόσθαι ποιήσῃν· οὐ ταῦτόν δ' εἶναι ὥς δύναται

^a See *Rhet.* 1401 a 27 and Cope and Sandys' note.

'I-saw-a-man-being-beaten with my eyes' is not the same thing as to say 'I saw a man being-beaten-with-my-eyes.'—Then there is Euthydemus' saying, 'Do you know now in Sicily that there are triremes in Piræus? ^a'—And, again, 'Can a good man who is a cobbler be bad?' 'No.' 'But a man who is good can be a bad cobbler; therefore he will be a good-bad cobbler.'—Again, 'Things of which the knowledge is good are good objects of learning, are they not?' 'Yes.' 'But the knowledge of evil is good; therefore evil is a good object of learning.' 'But, further, evil is both evil and an object of learning, so that evil is an evil object of learning; but it has already been seen that the knowledge of evils is good.'—'Is it true to say at the present moment you are born?' 'Yes.' 'Then you are born at the present moment.' Does not a different division of the words signify something different? For it is true to say-at-the-present-moment that you are born, but not to say you are born-at-the-present-moment.—Again, 'Can you do what you can and as you can?' 'Yes.' 'And when you are not playing the harp you have the power of playing the harp; and so you could play the harp when you are not playing the harp.' In other words, he does not possess the power of playing-when-he-is-not-playing, but he possesses the power of doing it when he is not doing it.

Some people solve this in another manner also. If he has granted that a man can do what he can do, they say that it does not follow that he can play the harp when he is not playing it; for it has not been granted that he will do it in every way in which he can,—for it is not the same thing to do it in the way

177 b

καὶ πάντως ὡς δύναται ποιεῖν. ἀλλὰ φανερόν ὅτι οὐ καλῶς λύουσιν· τῶν γὰρ παρὰ ταῦτόν λόγων ἡ αὐτὴ λύσις, αὕτη δ' οὐχ ἀρμόσει ἐπὶ πάντας οὐδὲ πάντως ἐρωτωμένους, ἀλλ' ἔστι πρὸς τὸν ἐρωτῶντα, οὐ πρὸς τὸν λόγον.

35 XXI. Παρὰ δὲ τὴν προσωδίαν λόγοι μὲν οὐκ εἰσίν, οὔτε τῶν γεγραμμένων οὔτε τῶν λεγομένων, πλὴν εἴ τινες ὀλίγοι γένοιντ' ἄν, οἷον οὗτος ὁ λόγος. ἄρα γ' ἔστι τὸ οὐ καταλύεις οἰκία; ναί. οὐκοῦν τὸ

178 a οὐ καταλύεις τοῦ καταλύεις ἀπόφασις; ναί. ἔφησας δ' εἶναι τὸ οὐ καταλύεις οἰκίαν· ἡ οἰκία ἄρα ἀπόφασις. ὡς δὴ λυτέον, δηλόν· οὐ γὰρ ταῦτό σημαίνει ὀξύτερον τὸ δὲ βαρύτερον ῥηθέν.

XXII. Δηλόν δὲ καὶ τοῖς παρὰ τὸ ὡσαύτως λέ-
5 γεσθαι τὰ μὴ ταῦτὰ πῶς ἀπαντητέον, ἐπεὶ περ ἔχομεν τὰ γένη τῶν κατηγοριῶν. ὁ μὲν γὰρ ἔδωκεν ἐρωτηθεὶς μὴ ὑπάρχειν τι τούτων ὅσα τί ἔστι σημαίνει· ὁ δ' ἔδειξεν ὑπάρχον τι τῶν πρὸς τι ἢ ποσῶν, δοκούντων δὲ τί ἔστι σημαίνει διὰ τὴν λέξιν, οἷον ἐν τῷδε τῷ λόγῳ. ἄρ' ἐνδέχεται τὸ
10 αὐτὸ ἅμα ποιεῖν τε καὶ πεποιηκέναι; οὔ. ἀλλὰ μὴν ὁρᾶν γέ τι ἅμα καὶ ἑωρακέναι τὸ αὐτὸ καὶ κατὰ ταῦτό ἐνδέχεται. ἄρ' ἐστὶ τι τῶν πάσχειν ποιεῖν τι; οὔ. οὐκοῦν τὸ τέμνεται καίεται αἰσθάνεται ὁμοίως λέγεται, καὶ πάντα πάσχειν τι ση-

^a The point here is the difference of breathing and the presence or absence of the circumflex accent.

in which he can and in *every* way in which he can. But clearly this solution is not a good one ; for the solution of arguments which turn on an identical principle is identical, whereas this solution will not suit every argument nor every form of question into which it can be put, but is directed against the questioner, not against the argument.

XXI. Arguments do not arise owing to accentuation either in written or in spoken language, though a few might occur such as the following : A house is ' where you lodge ' (οὐ καταλύεις), isn't it ? Yes. Is not ' you do not lodge ' (οὐ καταλύεις) the negation of ' you lodge ' (καταλύεις) ? Yes. But you said that ' where you lodge ' (οὐ καταλύεις) was a house ; therefore a house is a negation. It is obvious how this must be solved ; for the spoken word is not the same with the acuter and with the graver accent.^a

XXII. It is plain also how we must meet arguments that turn on the identical expression of things which are not identical, seeing that we possess the various kinds of categories. Suppose that one man when questioned has granted that something which denotes a substance is not an attribute, and another man has shown that something is an attribute which is in the category of relation or quantity but generally held, because of its expression, to denote a substance, as for example in the following argument : Is it possible to be doing and to have done the same thing at the same time ? No. But it is surely possible to be seeing and to have seen the same thing at the same time and under the same conditions. Or again, Is any form of passivity a form of activity ? No. Then ' he is cut,' ' he is burnt,' ' he is affected by a sensible object ' are similar kinds of expression and all denote

(5) Wrong accents.

(6) Similar expressions for different things.

Examples.

178 a

μαίνει· πάλιν δὲ τὸ λέγειν τρέχειν ὁρᾶν ὁμοίως
 15 ἀλλήλοις λέγεται· ἀλλὰ μὴν τό γ' ὁρᾶν αἰσθάνεσθαί
 τί ἐστίν, ὥστε καὶ πάσχειν τι ἅμα καὶ ποιεῖν. εἰ
 δέ τις ἐκεῖ δούς μὴ ἐνδέχεσθαι ἅμα ταὐτὸ ποιεῖν
 καὶ πεποιηκέναι, τὸ ὁρᾶν καὶ ἑωρακέναι φαίη
 ἐγχωρεῖν, οὐπω ἐλήλεγκται, εἰ μὴ λέγοι τὸ ὁρᾶν
 ποιεῖν τι ἀλλὰ πάσχειν· προσδεῖ γὰρ τούτου τοῦ
 20 ἐρωτήματος· ἀλλ' ὑπὸ τοῦ ἀκούοντος ὑπολαμ-
 βάνεται δεδοκέναι, ὅτε τὸ τέμνειν ποιεῖν τι καὶ τὸ
 τετμηκέναι πεποιηκέναι ἔδωκε, καὶ ὅσα ἄλλα
 ὁμοίως λέγεται. τὸ γὰρ λοιπὸν αὐτὸς προστίθησιν
 ὁ ἀκούων ὡς ὁμοίως λεγόμενον· τὸ δὲ λέγεται μὲν
 οὐχ ὁμοίως, φαίνεται δὲ διὰ τὴν λέξιν. τὸ αὐτὸ
 25 δὲ συμβαίνει ὅπερ ἐν ταῖς ὁμωνυμίαις· οἶεται γὰρ
 ἐν τοῖς ὁμωνύμοις ὁ ἀγνῶς τῶν λόγων ὁ ἔφησεν
 ἀποφῆσαι πρᾶγμα, οὐκ ὄνομα· τὸ δὲ ἔτι προσδεῖ
 ἐρωτήματος, εἰ ἐφ' ἐν βλέπων λέγει τὸ ὁμώνυμον·
 οὕτως γὰρ δόντος ἔσται ἔλεγχος.

Ὅμοιοι δὲ καὶ οἶδε οἱ λόγοι τούτοις, εἰ ὁ τις
 30 ἔχων ὕστερον μὴ ἔχει ἀπέβαλεν· ὁ γὰρ ἓνα μόνον
 ἀποβαλὼν ἀστράγαλον οὐχ ἕξει δέκα ἀστραγάλους.
 ἢ ὁ μὲν μὴ ἔχει πρότερον ἔχων, ἀποβέβληκεν, ὅσον
 δὲ μὴ ἔχει ἢ ὅσα, οὐκ ἀνάγκη τοσαῦτα ἀποβαλεῖν.

^a Knucklebones were used as dice by the Greeks.

some form of passivity ; and, on the other hand, ' to say,' ' to run,' and ' to see ' are forms of expression similar to one another ; but ' to see ' is surely a way of being affected by a sensible object, so that passivity and activity occur at the same time. In the former case, if someone, after granting that it is impossible to be doing and to have done the same thing at the same time, were to say that it *is* possible to see a thing and to have seen it, he has not yet been refuted supposing that he declares that seeing is a form not of activity but of passivity. For this further question is necessary, though he is supposed by the hearer to have granted it when he granted that ' to cut ' is ' to be doing something ' and ' to have cut ' is ' to have done something,' and so with similar forms of expression. For the hearer himself adds the rest, on the supposition that the significance is similar, whereas it is not really similar but only appears so owing to the expression. The same thing occurs as in fallacies of ambiguity ; for in dealing with ambiguous terms the man who is not an expert in argument thinks that his opponent has denied the fact which he asserted, not the term, whereas yet another question needs to be asked, namely, whether he is using the ambiguous term with his eye upon one meaning only ; for if he grants this, a refutation will be achieved.

Similar to the above are also the following arguments : Has a man lost what he had and afterwards has not ? For he who has lost one die ^a only will no longer have ten dice. Is not what really happens that he has lost something which he had before but no longer has, but it does not follow that he has lost the whole amount or number which he no longer

Examples
(continued).

178 a

ἐρωτήσας οὖν ὃ ἔχει, συνάγει ἐπὶ τοῦ ὅσα· τὰ γὰρ
 35 δέκα ποσά. εἰ οὖν ἤρετο ἐξ ἀρχῆς εἰ ὅσα τις μὴ
 ἔχει πρότερον ἔχων, ἀρά γε ἀποβέβληκε τοσαῦτα,
 οὐδεὶς ἂν ἔδωκεν, ἀλλ' ἢ τοσαῦτα ἢ τούτων τι. καὶ
 ὅτι δοίῃ ἂν τις ὃ μὴ ἔχει. οὐ γὰρ ἔχει ἓνα μόνον
 ἀσπράγαλον. ἢ οὐ δέδωκεν ὃ οὐκ εἶχεν, ἀλλ' ὥς
 οὐκ εἶχε, τὸν ἓνα; τὸ γὰρ μόνον οὐ τόδε σημαίνει

178 b

οὐδὲ τοιόνδε οὐδὲ τοσόνδε, ἀλλ' ὥς ἔχει πρὸς τι,
 οἷον ὅτι οὐ μετ' ἄλλου. ὥσπερ οὖν εἰ ἤρετο ἀρ' ὃ
 μή τις ἔχει δοίῃ ἂν, μὴ φάντος δὲ ἔροιτο εἰ δοίῃ
 ἂν τίς τι ταχέως μὴ ἔχων ταχέως, φήσαντος δὲ
 συλλογίζοιτο ὅτι δοίῃ ἂν τις ὃ μὴ ἔχει. καὶ
 5 φανερόν ὅτι οὐ συλλελόγισται· τὸ γὰρ ταχέως οὐ
 τόδε διδόναι ἀλλ' ὧδε διδόναι ἐστίν· ὥς δὲ μὴ ἔχει
 τις, δοίῃ ἂν, οἷον ἡδέως ἔχων δοίῃ ἂν λυπηρῶς.

Ὅμοιοι δὲ καὶ οἱ τοιοίδε πάντες. ἀρ' ἢ μὴ ἔχει
 χειρὶ τύπτοι ἂν; ἢ ᾧ μὴ ἔχει ὀφθαλμῷ ἴδοι ἂν;
 10 οὐ γὰρ ἔχει ἓνα μόνον. λύουσι μὲν οὖν τινὲς λέ-
 γοντες καὶ ὥς ἔχει ἓνα μόνον καὶ ὀφθαλμὸν καὶ

has? In the question, therefore, he is dealing with that which he has, in the conclusion with the total number; for the number was ten. If, therefore, he had asked in the first place whether a man who formerly possessed a number of objects which he no longer possesses, has lost the total number of them, no one would have granted this, but would have said that he had lost either the total number or one of the objects. Again, it is argued that a man could give what he had not got; for what he has not got is one die only. Is not what really happens that he has not given that which he has not got but has given it in a manner in which he has not got it, namely, as a single unit? For 'single unit' does not denote either a particular kind of thing or a quality or a quantity but a certain relation to something else, namely, dissociation from anything else. It is, therefore, as though he had asked whether a man could give what he has not got, and on receiving the answer 'No,' were to ask whether a man could give something quickly when he had not got it quickly, and, on receiving the answer 'Yes,' were to infer that a man could give what he had not got. It is obvious that he has not drawn a correct inference; for 'giving quickly' does not denote giving a particular thing but giving in a particular manner, and a man could give something in a manner in which he did not get it; for example, he could get it with pleasure and give it with pain.

Similar also are all the following arguments: Further examples.
 'Could a man strike with a hand that he has not got or see with an eye that he has not got?' For he has not got only one eye. Some people, therefore, solve this by saying that the man who has more than one

ἀλλ' ὅτιοῦν ὁ πλείω ἔχων. οἱ δὲ καὶ ὡς ὁ ἔχει
 ἔλαβεν· ἐδίδου γὰρ μίαν μόνον οὗτος ψῆφον· καὶ
 οὗτός γ' ἔχει, φασί, μίαν μόνην παρὰ τούτου
 ψῆφον. οἱ δ' εὐθὺς τὴν ἐρώτησιν ἀναιροῦντες, ὅτι
 15 ἐνδέχεται ὁ μὴ ἔλαβεν ἔχειν, οἶον οἶνον λαβόντα
 ἡδύν, διαφθαρέντος ἐν τῇ λήψει, ἔχειν ὀξύν. ἀλλ'
 ὅπερ ἐλέχθη καὶ πρότερον, οὗτοι πάντες οὐ πρὸς
 τὸν λόγον ἀλλὰ πρὸς τὸν ἀνθρωπον λύουσιν. εἰ
 γὰρ ἦν αὕτη λύσις, δόντα τὸ ἀντικείμενον οὐχ οἶον
 τε λύειν, καθάπερ ἐπὶ τῶν ἄλλων· οἶον εἰ ἔστι μὲν
 20 ὁ ἔστι δ' ὁ οὐ, ἢ λύσις, ἂν ἀπλῶς δῶ λέγεσθαι,
 συμπεραίνεται· ἐὰν δὲ μὴ συμπεραίνεται, οὐκ ἂν
 εἶη λύσις· ἐν δὲ τοῖς προειρημένοις πάντων διδο-
 μένων οὐδὲ φαμεν γίνεσθαι συλλογισμόν.

"Ἐτι δὲ καὶ οἷδ' εἰσὶ τούτων τῶν λόγων. ἄρ'
 25 ὁ γέγραπται, ἔγραφέ τις; γέγραπται δὲ νῦν ὅτι σὺ
 κάθησαι, ψευδῆς λόγος· ἦν δ' ἀληθής, ὅτ' ἐγράφετο·
 ἅμα ἄρα ἐγράφετο ψευδῆς καὶ ἀληθής. τὸ γὰρ
 ψευδῆ ἢ ἀληθῆ λόγον ἢ δόξαν εἶναι οὐ τότε ἀλλὰ
 τοιόνδε σημαίνει· ὁ γὰρ αὐτὸς λόγος καὶ ἐπὶ τῆς
 30 δόξης. καὶ ἄρ' ὁ μανθάνει ὁ μανθάνων, τοῦτ' ἐστὶν
 ὁ μανθάνει; μανθάνει δέ τις τὸ βραδὺ ταχύ. οὐ
 τοῖνυν ὁ μανθάνει ἀλλ' ὡς μανθάνει εἶρηκεν. καὶ
 ἄρ' ὁ βαδίζει τις πατεῖ; βαδίζει δὲ τὴν ἡμέραν

^a It seems probable that a new argument is dealt with here,
 cf. b 36 καὶ ὅτι κτλ. οἱ δὲ possibly introduced a second solu-
 tion of the previous argument which has fallen out.

^b But B may already possess other pebbles.

^c 177 b 33.

eye (or whatever it is) has also only one. There is also ^a the argument of some people that ' what a man has, he has received ' : A only gave one pebble, and B has, they say, only one pebble from A.^b Other people argue by directly demolishing the question raised, saying that one can have what one has not received ; for example, one can receive wine that is sound but have it in a sour condition if it has gone bad in the process of transfer. But, as was said before,^c all these people direct their solutions not to the argument but to the man. For if this were a real solution, it would be impossible to achieve a solution by granting the opposite, as happens in all other cases ; for example, if ' it is partly so and partly not so ' is the solution, an admission that the expression is used without qualification makes the conclusion valid ; but if no conclusion is reached, there cannot be a solution. In the above examples, even though everything is conceded, yet we say that no proof has been effected.

Moreover, the following also belong to this class of arguments : ' If something is written, did someone write it ? ' It is written that ' you are sitting ' ; this is a false statement, but was true at the time when it was written ; therefore what was written is at the same time false and true. No, for the falsity or truth of a statement or opinion does not denote a substance but a quality ; for the same account applies to an opinion as to a statement. Again, ' Is what the learner learns that which he learns ? ' A man learns a slow march quick ; it is not then *what* he learns that is meant but *how* he learns it. Again, ' Does a man trample on that through which he walks ? ' But he walks through the whole day. Was not what

178 b

ὅλην. ἢ οὐχ ὁ βαδίζει ἀλλ' ὅτε βαδίζει εἴρηκεν·
οὐδ' ὅταν τὴν κύλικα πίνειν, ὁ πίνει ἀλλ' ἐξ οὗ.

35 καὶ ἀρ' ὁ τις οἶδεν ἢ μαθὼν ἢ εὐρὼν οἶδεν; ὦν δέ
τὸ μὲν εὔρε τὸ δ' ἔμαθε, τὰ ἄμφω οὐδέτερον. ἢ ὁ
μὲν ἅπαν, ἃ δ' <οὐχ> ἅπαντα;¹ καὶ ὅτι ἔστι τις τρί-
τος ἄνθρωπος παρ' αὐτὸν καὶ τοὺς καθ' ἕκαστον. τὸ
γὰρ ἄνθρωπος καὶ ἅπαν τὸ κοινὸν οὐ τόδε τι, ἀλλὰ
τοιόνδε τι ἢ πρὸς τι ἢ πῶς ἢ τῶν τοιούτων τι ση-

179 a μαίνει. ὁμοίως δὲ καὶ ἐπὶ τοῦ Κορίσκος καὶ Κο-
ρίσκος μουσικός, πότερον ταῦτόν ἢ ἕτερον; τὸ
μὲν γὰρ τόδε τι τὸ δὲ τοιόνδε σημαίνει, ὥστ' οὐκ
ἔστιν αὐτὸ ἐκθέσθαι· οὐ τὸ ἐκτίθεσθαι δὲ ποιεῖ τὸν
τρίτον ἄνθρωπον, ἀλλὰ τὸ ὅπερ τόδε τι εἶναι συγ-
5 χωρεῖν. οὐ γὰρ ἔσται τόδε τι εἶναι, ὅπερ Καλλίας,
καὶ ὅπερ ἄνθρωπός ἐστιν. οὐδ' εἴ τις τὸ ἐκτιθέ-
μενον μὴ ὅπερ τόδε τι εἶναι λέγοι ἀλλ' ὅπερ ποιόν,
οὐδὲν διοίσει· ἔσται γὰρ τὸ παρὰ τοὺς πολλοὺς ἔν
τι, οἷον ὁ ἄνθρωπος. φανερόν οὖν ὅτι οὐ δοτέον
τόδε τι εἶναι τὸ κοινῇ κατηγορούμενον ἐπὶ πᾶσιν,
10 ἀλλ' ἥτοι ποιὸν ἢ πρὸς τι ἢ ποσὸν ἢ τῶν τοιούτων
τι σημαίνειν.

XXIII. "Ὅλως δ' ἐν τοῖς παρὰ τὴν λέξιν λόγοις
ἀεὶ κατὰ τὸ ἀντικείμενον ἔσται ἡ λύσις ἢ παρ' ὁ

¹ Reading ἃ δ' <οὐχ> ἅπαντα with Pickard-Cambridge.

ON SOPHISTICAL REFUTATIONS, XXII-XXIII

was meant not what he walks through but when he walks? Just as when we talk of a man drinking a cup, we refer not to what he drinks but to that out of which he drinks. Again, 'Is it not either by learning or by discovery that a man knows what he knows?' But, supposing that of two things he has discovered one and learnt the other, he has not either discovered or learnt the two taken together. Is it not true to say that what he knows is each single thing, but not all the things taken together? There is also the argument that there is a 'third man' beside 'man' and 'individual men.' This is not so, for 'man' and every generic term denotes not an individual substance but a quality or relation or mode or something of the kind. So, too, with the question whether 'Coriscus' and 'the musician Coriscus' are the same thing or different. For the one term denotes an individual substance, the other a quality, so that it is impossible to isolate it; for it is not the process of isolation which produces the 'third man' but the admission that there is an individual substance. For 'man' will not be an individual substance as Callias is, nor will it make any difference if one were to say that what is isolated is not an individual substance but a quality; for there will still be a one as contrasted with the many, for instance 'man.' It is obvious, therefore, that it must not be granted that the term predicated universally of a class is an individual substance, but we must say that it denotes either a quality or a relation or a quantity or something of the kind.

XXIII. To sum up, in dealing with arguments which turn on language the solution will always depend on the opposite of that on which the argument

Summary of
rules for the
solution of
fallacies

179 a

ἐστὶν ὁ λόγος. οἷον εἰ παρὰ σύνθεσιν ὁ λόγος, ἢ
 λύσις διελόντι, εἰ δὲ παρὰ διαίρεσιν, συνθέντι. πάλιν
 15 εἰ παρὰ προσωδίαν ὀξεῖαν, ἢ βαρεῖαν προσωδία
 λύσις, εἰ δὲ παρὰ βαρεῖαν, ἢ ὀξεῖαν. εἰ δὲ παρ'
 ὁμωνυμίαν, ἔστι τὸ ἀντικείμενον ὄνομα εἰπόντα
 λύειν, οἷον εἰ ἄψυχον¹ συμβαίνει λέγειν, ἀποφή-
 σαντα μὴ εἶναι, δηλοῦν ὡς ἔστιν ἔμψυχον· εἰ δ'
 ἄψυχον ἔφησεν, ὁ δ' ἔμψυχον συνελογίσαστο, λέγειν
 20 ὡς ἔστιν ἄψυχον. ὁμοίως δὲ καὶ ἐπὶ τῆς ἀμφι-
 βολίας. εἰ δὲ παρ' ὁμοιότητα λέξεως, τὸ ἀντικεί-
 μενον ἔσται λύσις. ἄρ' ὁ μὴ ἔχει, δοίη ἂν τις;
 ἢ οὐχ ὁ μὴ ἔχει, ἀλλ' ὡς οὐκ ἔχει, οἷον ἓνα μόνον
 ἀστράγαλον. ἄρ' ὁ ἐπίσταται, μαθὼν ἢ εὐρὼν
 ἐπίσταται; ἀλλ' οὐχ ἃ ἐπίσταται. καὶ² ὁ βαδίζει
 25 πατεῖ, ἀλλ' οὐχ ὅτε. ὁμοίως δὲ καὶ ἐπὶ τῶν
 ἄλλων.

XXIV. Πρὸς δὲ τοὺς παρὰ τὸ συμβεβηκὸς μία
 μὲν ἢ αὐτὴ λύσις πρὸς ἅπαντας. ἐπεὶ γὰρ ἀδι-
 ὀριστόν ἐστι τὸ πότε λεκτέον ἐπὶ τοῦ πράγματος,
 ὅταν ἐπὶ τοῦ συμβεβηκότητος ὑπάρχη, καὶ ἐπ' ἐνίων
 30 μὲν δοκεῖ καὶ φασίν, ἐπ' ἐνίων δ' οὐ φασιν ἀναγ-
 καῖον εἶναι, ῥητέον οὖν συμβιβασθέντος³ ὁμοίως
 πρὸς ἅπαντας ὅτι οὐκ ἀναγκαῖον. ἔχειν δὲ δεῖ
 προφέρειν τὸ οἷον. εἰσὶ δὲ πάντες οἱ τοιοῖδε τῶν
 λόγων παρὰ τὸ συμβεβηκός. ἄρ' οἶδας ὁ μέλλω

¹ Reading ἄψυχον with Poste for ἔμψυχον.² Omitting εἰ after καί.³ Reading συμβιβασθέντος with A.^a See note on 178 a 31.^b See 178 b 32-33.

turns ; for example, if the argument turns on combination, the solution will be by division, if on division, by combination. Again, if it turns on acute accentuation, grave accentuation will be the solution, and *vice versa*. If it turns on equivocation, it can be solved by the use of the opposite term ; for example, if it so happens that one says something is inanimate after having denied that it is so, one must show that it is animate ; and, if one has said that it is inanimate and one's opponent has argued that it is animate, one must assert that it is inanimate. Similarly, too, in the case of ambiguity ; if the argument turns on similarity of language, the opposite will be the solution. ' Could one give what one has not got ? ' Surely not *what* he has not got but he could give it in *a way in which* he has not got it, for example, a single die ^a by itself. ' Does a man know the *thing* which he knows by learning or discovery ? ' Yes, but not ' the *things* which he knows.' Also a man tramples on the *thing* through which he walks, not on the *time* through which he walks.^b And similarly, too, with the other instances.

XXIV. To meet arguments which turn upon accident one and the same solution is universally applicable. It is undetermined on what occasions the attribute should be applied to the subject where it belongs to the accident, and sometimes it is generally held and stated to belong and sometimes it is denied that it necessarily belongs. We must, therefore, when a conclusion has been reached, assert in every case alike that it does not necessarily belong. But we must have an example to bring forward. All such arguments as the following turn on accident : ' Do you know what I am about to ask you ? ' ' Do you know the man

which
depend on
diction.

(b) *Solutions not dependent on diction* (chs. xxiv-xxx).

(1) Accident.

(a) By denying the consequence from the accident to the subject.

179 a

σε ἐρωτᾶν; ἄρ' οἶδας τὸν προσιόντα ἢ τὸν ἐγ-
 κεκαλυμμένον; ἄρ' ὁ ἀνδριάς σόν ἐστιν ἔργον, ἢ
 35 σὸς ὁ κύων πατήρ; ἄρα τὰ ὀλιγάκις ὀλίγα ὀλίγα;
 φανερόν γάρ ἐν ἅπασιν τούτοις ὅτι οὐκ ἀνάγκη τὸ
 κατὰ τοῦ συμβεβηκότος καὶ κατὰ τοῦ πράγματος
 ἀληθεύεσθαι· μόνοις γὰρ τοῖς κατὰ τὴν οὐσίαν
 ἀδιαφόροις καὶ ἐν οὖσιν ἅπαντα δοκεῖ ταῦτα ὑπάρ-
 179 b χειν· τῷ δ' ἀγαθῷ οὐ ταυτόν ἐστιν ἀγαθῷ τ' εἶναι
 καὶ μέλλοντι ἐρωτᾶσθαι, οὐδὲ τῷ προσιόντι ἢ ἐγ-
 κεκαλυμμένῳ προσιόντι τε εἶναι καὶ Κορίσκῳ· ὥστ'
 οὐκ εἰ οἶδα τὸν Κορίσκον, ἀγνοῶ δὲ τὸν προσιόντα,
 τὸν αὐτὸν οἶδα καὶ ἀγνοῶ· οὐδ' εἰ τοῦτ' ἐστὶν ἐμόν,
 5 ἔστι δ' ἔργον, ἐμόν ἐστιν ἔργον, ἀλλ' ἢ κτῆμα ἢ
 πρᾶγμα ἢ ἄλλο τι. τὸν αὐτὸν δὲ τρόπον καὶ ἐπὶ
 τῶν ἄλλων.

Λύουσι δέ τινες ἀναιροῦντες τὴν ἐρώτησιν· φασὶ
 γὰρ ἐνδέχεσθαι ταῦτ' οὐκ εἶδέναι καὶ ἀγνοεῖν,
 ἀλλὰ μὴ κατὰ ταυτό· τὸν οὖν προσιόντα οὐκ εἰδότες,
 10 τὸν δὲ Κορίσκον εἰδότες, ταῦτ' οὐκ εἶδέναι καὶ
 ἀγνοεῖν φασίν, ἀλλ' οὐ κατὰ ταυτό· καίτοι πρῶτον
 μὲν, καθάπερ ἤδη εἵπομεν, δεῖ τῶν παρὰ ταῦτ'
 λόγων τὴν αὐτὴν εἶναι διόρθωσιν· αὕτη δ' οὐκ
 ἔσται, ἂν τις μὴ ἐπὶ τοῦ εἶδέναι ἀλλ' ἐπὶ τοῦ εἶναι
 ἢ πῶς ἔχειν τὸ αὐτὸ ἀξίωμα λαμβάνῃ, οἷον εἰ ὅδε

^a See 179 b 15. Cf. Plato, *Euthydemus* 298 E.

^b The reference here is to the question (a 33) 'Do you know what I am about to ask you?' The reply is 'no.' 'I am going to ask you about the good; therefore, you do not know about the good.'

^c 177 b 31.

who is coming towards us ? ' or ' the man with his face covered ? ' ' Is the statue your work ? ' or ' Is the dog your father ? ' ^a ' Is the result of multiplying a small number by another small number itself a small number ? ' It is obvious that in all these instances it does not necessarily follow that the attribute which is true of the accident is also true of the subject. For it is only to things which are indistinguishable and one in essence that all the same attributes are generally held to belong ; but in the case of the good, it is not the same thing to be good and to be about to be the subject of a question. ^b Nor in the case of ' the man who is coming towards us ' (or ' with his face covered '), is ' to be coming towards us ' the same thing as ' to be Coriscus ' ; so that, if I know Coriscus but do not know the man who is coming towards me, it does not follow that I know and do not know the same man. And again, if this is ' mine ' and if it is also ' a piece of work,' it is not therefore ' a piece of my work ' but may be my possession or chattel or something else. The other instances can be treated in the same way.

Some people obtain a solution by demolishing the thesis of the question ; for they say that it is possible to know and not to know the same thing but not in the same respect ; when, therefore, they do not know the man who is coming towards them but know Coriscus, they say that they know and do not know the same thing but not in the same respect. Yet in the first place, as we have already said, ^c the method of correcting arguments which turn on the same principle ought to be identical, yet this will not be so, if one takes the same axiom to apply not to ' knowledge ' but to ' existence ' or ' being in a certain state ' ; for

(β) By demolishing the original question.

15 ἐστὶ πατήρ, ἔστι δὲ σός· εἰ γὰρ ἐπ' ἐνίων τοῦτ'
 ἐστὶν ἀληθές καὶ ἐνδέχεται ταῦτὸ εἰδέναι καὶ
 ἀγνοεῖν, ἀλλ' ἐνταῦθα οὐδὲν κοινωνεῖ τὸ λεχθέν.
 οὐδὲν δὲ κωλύει τὸν αὐτὸν λόγον πλείους μοχθηρίας
 ἔχειν. ἀλλ' οὐχ ἡ πάσης ἀμαρτίας ἐμφάνις λύσις
 ἐστίν· ἐγχωρεῖ γὰρ ὅτι μὲν ψεῦδος συλλελόγισται
 20 δεῖξαί τινα, παρ' ὃ δὲ μὴ δεῖξαι, οἷον τὸν Ζήνωνος
 λόγον, ὅτι οὐκ ἔστι κινηθῆναι. ὥστε καὶ εἴ τις
 ἐπιχειροῖ συνάγειν ὡς ἀδύνατον, ἀμαρτάνει, καὶ
 εἰ μυριάκις ἢ συλλελογισμένος· οὐ γὰρ ἐστὶν αὕτη
 λύσις. ἦν γὰρ ἡ λύσις ἐμφάνις ψευδοῦς συλλογι-
 σμοῦ, παρ' ὃ ψευδής· εἰ οὖν μὴ συλλελόγισται ἢ
 25 καὶ ἀληθές ἢ ψεῦδος <ψεudōs>¹ ἐπιχειρεῖ συνάγειν,
 ἢ ἐκείνου δήλωσις λύσις ἐστίν. ἴσως δὲ καὶ τοῦτ'
 ἐπ' ἐνίων οὐδὲν κωλύει συμβαίνειν· πλὴν ἐπὶ γε
 τούτων οὐδὲ τοῦτο δόξειεν ἄν· καὶ γὰρ τὸν Κορί-
 σκον ὅτι Κορίσκος οἶδε, καὶ τὸ προσιὸν ὅτι προσ-
 ιόν. ἐνδέχασθαι δὲ δοκεῖ τὸ αὐτὸ εἰδέναι καὶ μὴ,
 30 οἷον ὅτι μὲν λευκὸν εἰδέναι, ὅτι δὲ μουσικὸν μὴ
 γνωρίζειν· οὕτω γὰρ τὸ αὐτὸ οἶδε καὶ οὐκ οἶδεν,
 ἀλλ' οὐ κατὰ ταυτόν. τὸ δὲ προσιὸν καὶ Κορίσκον,
 καὶ ὅτι προσιὸν καὶ ὅτι Κορίσκος, οἶδεν.

Ὁμοίως δ' ἀμαρτάνουσι καὶ οἱ λύοντες, ὅτι ἅπας

¹ Reading with W. A. Pickard-Cambridge ψεῦδος <ψεudōs>.

^a Cf. a 34 f., the false conclusion being, 'This dog is your father.'

ON SOPHISTICAL REFUTATIONS, XXIV

example, 'this dog is a father, this dog is yours.'^a Though it is sometimes true and it is possible to know and not to know the same thing, yet the suggested solution is quite inapplicable in the above instance. But there is no reason why the same argument should not contain several flaws, but it is not the exposure of every fault that forms a solution ; for it is possible for a man to show that a false conclusion has been reached without showing on what point it turns, as, for instance, in Zeno's argument that motion is impossible. Even, therefore, if one were to attempt to infer the impossibility of this view, he is wrong, even though he has given countless proofs ; for this procedure does not constitute a solution, for a solution is, as we saw, an exposure of false reasoning, showing on what the falsity depends. If, therefore, he has not proved his case or else if he attempts to draw an inference, whether true or false, by false means, the unmasking of this procedure is a solution. But perhaps, though in some cases there is nothing to prevent this happening, yet it would not be generally admitted in the instances given above ; for he knows that Coriscus is Coriscus and that what is coming towards him is coming towards him. But there are cases in which it is generally held to be possible to know and not to know the same thing ; for instance, one can know that someone is white but be ignorant of the fact that he is musical, thus knowing and not knowing the same thing but not in the same respect ; but as to what is coming towards him and Coriscus, he knows both that it is coming towards him and that he is Coriscus.

An error similar to that made by those whom we have mentioned is committed by those who solve

(Erroneous methods of solution.)

179 b

35 ἀριθμὸς ὀλίγος, ὥσπερ οὗς εἵπομεν· εἰ γὰρ μὴ συμπεραινομένου, τοῦτο παραλιπόντες, ἀληθὲς συμπεπεράνθαι φασί, πάντα γὰρ εἶναι καὶ πολὺν καὶ ὀλίγον, ἀμαρτάνουσιν.

Ἔνιοι δὲ καὶ τῷ διττῷ λύουσι τοὺς συλλογισμούς, οἷον ὅτι σὸς ἐστὶ πατὴρ ἢ υἱὸς ἢ δοῦλος. καίτοι
180 a φανερόν ὥς εἰ παρὰ τὸ πολλαχῶς λέγεσθαι φαίνεται ὁ ἔλεγχος, δεῖ τοῦνομα ἢ τὸν λόγον κυρίως εἶναι πλειόνων· τὸ δὲ τόνδ' εἶναι τοῦδε τέκνον οὐδεὶς λέγει κυρίως, εἰ δεσπότης ἐστὶ τέκνον· ἀλλὰ παρὰ
5 τὸ συμβεβηκὸς ἢ σύνθεσις ἐστίν. ἄρ' ἐστὶ τοῦτο σόν; ναί. ἔστι δὲ τοῦτο τέκνον; σὸν ἄρα τοῦτο τέκνον· ὅτι συμβέβηκεν εἶναι καὶ σὸν καὶ τέκνον, ἀλλ' οὐ σὸν τέκνον.

Καὶ τὸ εἶναι τῶν κακῶν τι ἀγαθόν· ἡ γὰρ φρόνησις ἐστὶν ἐπιστήμη τῶν κακῶν. τὸ δὲ τοῦτο τού-
10 των εἶναι οὐ λέγεται πολλαχῶς, ἀλλὰ κτῆμα. εἰ δ' ἄρα πολλαχῶς (καὶ γὰρ τὸν ἄνθρωπον τῶν ζώων φαμέν εἶναι, ἀλλ' οὐ τι κτῆμα) καὶ ἐάν τι πρὸς τὰ κακὰ λέγηται ὥς τινός, διὰ τοῦτο τῶν κακῶν ἐστίν, ἀλλ' οὐ τοῦτο τῶν κακῶν. παρὰ τὸ πῇ οὖν καὶ ἀπλῶς φαίνεται. καίτοι ἐνδέχεται ἴσως ἀγαθὸν
15 εἶναί τι τῶν κακῶν διττῶς, ἀλλ' οὐκ ἐπὶ τοῦ λόγου τούτου, ἀλλ' εἴ τι δοῦλον εἴη ἀγαθὸν μοχθηροῦ, μᾶλλον. ἴσως δ' οὐδ' οὕτως· οὐ γὰρ εἰ ἀγαθὸν καὶ

^a When it is equivalent to our 'so-and-so's.'

the argument that every number is small ; for if, when no conclusion has been reached, they pass over the fact and say that a conclusion has been reached and is true because every number is both large and small, they are committing an error.

Some people, too, solve these reasonings by the principle of ambiguity, saying, for example, that 'yours' means 'your father' or 'your son' or 'your slave.' Yet it is obvious that, if the refutation turns upon the possibility of several meanings, the term or expression ought to be used literally in several senses ; but no one speaks of A as B's child in the literal sense if B is the child's master, but the combination is due to accident. 'Is A yours?' 'Yes.' 'Is A a child?' 'Yes.' 'Then A is your child,' for he happens to be both yours and a child ; but for all that he is not 'your child.'

There is also the argument that 'something "of evils" is good ; for wisdom is a knowledge "of evils."' But the statement that this is 'of so-and-so'^a is not used with several meanings but denotes possession. Granting, however, that the genitive has more than one meaning (for we say that man is 'of the animals,' though not a possession of theirs), and if the relation of so-and-so to evils is expressed by the genitive, it is therefore a so-and-so 'of evils,' but so-and-so is not one of the evils. The difference seems to be due to whether the genitive is used in a particular sense or absolutely. Yet it is perhaps possible for the saying 'Something of evils is good' to be ambiguous, though not in the example given above, but rather in the phrase 'a slave is good of the wicked.' But perhaps this example is not to the point either ; for if something is 'good' and 'of so-and-so,' it is not at

τούτου, ἀγαθὸν τούτου ἅμα. οὐδὲ τὸ τὸν ἄνθρωπον
 φάναι τῶν ζώων εἶναι οὐ λέγεται πολλαχῶς· οὐ
 20 γὰρ εἴ ποτέ τι σημαίνομεν ἀφελόντες, τοῦτο λέ-
 γεται πολλαχῶς· καὶ γὰρ τὸ ἡμῖς εἰπόντες τοῦ
 ἔπους δός μοι Ἰλιάδα σημαίνομεν, οἶον τὸ μῆνιν
 αἶειδε θεά.

XXV. Τοὺς δὲ παρὰ τὸ κυρίως τόδε ἢ πῇ ἢ
 ποῦ ἢ πῶς ἢ πρὸς τι λέγεσθαι καὶ μὴ ἀπλῶς,
 25 λυτέον σκοποῦντι τὸ συμπέρασμα πρὸς τὴν ἀντί-
 φασιν, εἰ ἐνδέχεται τούτων τι πεπονθέναι. τὰ γὰρ
 ἐναντία καὶ τὰ ἀντικείμενα καὶ φάσιν καὶ ἀπόφασιν
 ἀπλῶς μὲν ἀδύνατον ὑπάρχειν τῷ αὐτῷ, πῇ μέντοι
 ἑκάτερον ἢ πρὸς τι ἢ πῶς, ἢ τὸ μὲν πῇ τὸ δ'
 ἀπλῶς, οὐδὲν κωλύει. ὥστ' εἰ τόδε μὲν ἀπλῶς
 30 τόδε δὲ πῇ, οὐπω ἔλεγχος. τοῦτο δ' ἐν τῷ συμ-
 περάσματι θεωρητέον πρὸς τὴν ἀντίφασιν.

Εἰσὶ δὲ πάντες οἱ τοιοῦτοι λόγοι τοῦτ' ἔχοντες.
 ἀρ' ἐνδέχεται τὸ μὴ ὄν εἶναι; ἀλλὰ μὴν ἔστι γέ
 τι μὴ ὄν. ὁμοίως δὲ καὶ τὸ ὄν οὐκ ἔσται· οὐ γὰρ
 35 ἔσται τι τῶν ὄντων. ἀρ' ἐνδέχεται τὸν αὐτὸν ἅμα
 εὐορκεῖν καὶ ἐπιορκεῖν; ἀρ' ἐγχωρεῖ τὸν αὐτὸν
 ἅμα τῷ αὐτῷ πεῖθεσθαι καὶ ἀπειθεῖν; ἢ οὔτε
 τὸ εἶναί τι καὶ εἶναι ταυτόν; τὸ δὲ μὴ ὄν, οὐκ εἰ
 ἔστι τι, καὶ ἔστιν ἀπλῶς· οὔτ' εἰ εὐορκεῖ τόδε ἢ
 126

ON SOPHISTICAL REFUTATIONS, XXIV-XXV

the same time 'so and-so's good.' Nor is the statement that 'man is of the animals' used with several meanings; for a phrase does not acquire several senses every time we express its meaning in an elliptical form; for we express, 'Give me the *Iliad*' by quoting the half line 'Sing, goddess, the wrath.'

XXV. Arguments which turn upon the use of an expression not in its proper sense but with validity in respect only of a particular thing or in a particular respect or place or degree or relation and not absolutely, must be solved by examining the conclusion in the light of its contradictory, to see if it can possibly have been affected in any of these ways. For it is impossible for contraries and opposites and an affirmative and a negative to belong absolutely to the same subject; on the other hand, there is no reason why each should not belong in a particular respect or relation or manner, or one in a particular respect and the other absolutely. Thus if one belongs absolutely and the other in a particular respect, no refutation has yet been reached. This point must be examined in the conclusion by comparison with its contradictory.

(2) The use of words with or without qualification.

All the following arguments are of this kind: Is it possible for what is-not to be? But surely it is something which is not. Similarly, too, Being will not be; for it will *not be* any particular thing which is.—Is it possible for the same man at the same time to keep and to break his oath?—Is it possible for the same man at the same time to obey and disobey the same order? Is it not true, in the first place, that being something and Being are not the same thing? On the other hand, Not-being, even if it is something, has not absolute being as well. Secondly, if a man keeps his oath on a particular occasion or in a par-

Examples.

180 a

τῇδε, ἀνάγκη καὶ εὐορκεῖν, ὁ δ' ὁμόσας ἐπιορκήσκειν

180 b

εὐορκεῖ ἐπιορκῶν τοῦτο μόνον, εὐορκεῖ δὲ οὐ· οὐδ' ὁ ἀπειθῶν πείθεται, ἀλλὰ τι πείθεται. ὅμοιος δ' ὁ λόγος καὶ περὶ τοῦ ψεύδεσθαι τὸν αὐτὸν ἅμα καὶ ἀληθεύειν· ἀλλὰ διὰ τὸ μὴ εἶναι εὐθεώρητον, ποτέρως ἂν τις ἀποδοίῃ τὸ ἀπλῶς ἀληθεύειν ἢ ψεύδε-
 5 σθαι, δύσκολον φαίνεται. κωλύει δ' τὸν αὐτὸν¹ οὐδὲν ἀπλῶς μὲν εἶναι ψευδῆ, πῇ δ' ἀληθῆ, ἢ τινὸς καὶ εἶναι ἀληθῆ τινά, ἀληθῆ δὲ <αὐτὸν> μή.² ὁμοίως δὲ καὶ ἐπὶ τῶν πρὸς τι καὶ ποῦ καὶ πότε· πάντες γὰρ οἱ τοιοῦτοι λόγοι παρὰ τοῦτο συμβαίνουσιν. ἄρ' ἡ ὑγίεια ἢ ὁ πλοῦτος ἀγαθόν; ἀλλὰ τῷ ἄφρονι
 10 καὶ μὴ ὀρθῶς χρωμένῳ οὐκ ἀγαθόν· ἀγαθὸν ἄρα καὶ οὐκ ἀγαθόν. ἄρα τὸ ὑγιαίνειν ἢ δύνασθαι ἐν πόλει ἀγαθόν; ἀλλ' ἔστιν ὅτε οὐ βέλτιον· ταῦτὸν ἄρα τῷ αὐτῷ ἀγαθὸν καὶ οὐκ ἀγαθόν. ἢ οὐδὲν κωλύει ἀπλῶς ὄν ἀγαθὸν τῷδε μὴ εἶναι ἀγαθόν, ἢ τῷδε μὲν ἀγαθόν, ἀλλ' οὐ νῦν ἢ οὐκ ἐνταῦθ' ἀγαθόν;
 15 ἄρ' ὁ μὴ βούλοισ' ἂν ὁ φρόνιμος, κακόν; ἀποβαλεῖν δ' οὐ βούλεται τὰγαθόν· κακὸν ἄρα τὰγαθόν. οὐ γὰρ ταῦτὸν εἶπεῖν τὰγαθὸν εἶναι κακὸν καὶ τὸ ἀποβαλεῖν τὰγαθόν. ὁμοίως δὲ καὶ ὁ τοῦ κλέπτου

¹ Reading τὸν αὐτὸν or τοῦτον for αὐτὸν.

ticular respect, it does not necessarily follow that he is a keeper of oaths, but he who he has sworn that he will break his oath keeps his oath on this particular occasion only by forswearing himself, but is not a keeper of oaths; nor is he who disobeys obedient, except to a particular order. The argument is similar which deals with the question whether the same man can say what is at the same time both true and false; but it presents apparent difficulties because it is not easy to see whether the qualification 'absolutely' should be applied to 'true' or to 'false.' But there is no reason why the same man should not be absolutely a liar yet tell the truth in some respects, or that some of a man's words should be true but he himself not be truthful. Similarly, too, if there are qualifications of relation or place or time. All the following arguments turn upon a point of this kind. Is health (or wealth) a good thing? But to the fool who misuses it, it is not a good thing; it is, therefore, a good thing and not a good thing.—Is health (or political power) a good thing? But there are times when it is not better than other things; therefore the same thing is both good and not good for the same man. Or is there no reason why a thing should not be absolutely good but not good for a particular person, or good for a particular person, but not good at the present moment or here?—Is that which the wise man would not wish, an evil? But he does not wish for the rejection of the good; therefore, the good is an evil. This is not true; for it is not the same thing to say that the good is an evil and that the rejection of the good is an evil. So likewise with the argument about the thief; it does not follow,

² Reading ἀληθῆ δὲ <αὐτόν> μή.

180 b

λόγος. οὐ γὰρ εἰ κακὸν ἐστὶν ὁ κλέπτης, καὶ τὸ
 20 λαβεῖν ἐστὶ κακόν· οὐκ οὖν τὸ κακὸν βούλεται, ἀλλὰ
 τὰγαθόν· τὸ γὰρ λαβεῖν ἀγαθὸν ἀγαθόν. καὶ ἡ
 νόσος κακὸν ἐστὶν, ἀλλ' οὐ τὸ ἀποβαλεῖν νόσον.
 ἄρα τὸ δίκαιον τοῦ ἀδίκου καὶ τὸ δικαίως τοῦ
 ἀδίκως αἰρετώτερον; ἀλλ' ἀποθανεῖν ἀδίκως αἰρε-
 τώτερον. ἄρα δίκαιόν ἐστὶν τὰ αὐτοῦ ἔχειν ἕκαστον;
 25 ἂ δ' ἂν τις κρίνῃ κατὰ δόξαν τὴν αὐτοῦ, καὶ ἢ
 ψευδῇ, κύριά ἐστιν ἐκ τοῦ νόμου· τὸ αὐτὸ ἄρα
 δίκαιον καὶ οὐ δίκαιον. καὶ πότερα δεῖ κρίνειν τὸν
 τὰ δίκαια λέγοντα ἢ τὸν τὰ ἄδικα; ἀλλὰ μὴν καὶ
 τὸν ἀδικούμενον δίκαιόν ἐστιν ἱκανῶς λέγειν ἂ
 ἔπαθεν· ταῦτα δ' ἦν ἄδικα. οὐ γὰρ εἰ παθεῖν τι
 ἀδίκως αἰρετόν, τὸ ἀδίκως αἰρετώτερον τοῦ δι-
 30 καίως· ἀλλ' ἀπλῶς μὲν τὸ δικαίως, τοδὶ μέντοι
 οὐδὲν κωλύει ἀδίκως ἢ δικαίως. καὶ τὸ ἔχειν τὰ
 αὐτοῦ δίκαιον, τὸ δὲ τὰλλότρια οὐ δίκαιον· κρίσιν
 μέντοι ταύτην δικαίαν εἶναι οὐδὲν κωλύει, οἷον ἂν
 ἢ κατὰ δόξαν τοῦ κρίναντος· οὐ γὰρ εἰ δίκαιον
 τοδὶ ἢ ὠδί, καὶ ἀπλῶς δίκαιον. ὁμοίως δὲ καὶ
 35 ἄδικα ὄντα οὐδὲν κωλύει λέγειν γε αὐτὰ δίκαιον
 εἶναι· οὐ γὰρ εἰ λέγειν δίκαιον, ἀνάγκη δίκαια
 εἶναι, ὥσπερ οὐδ' εἰ ὠφέλιμον λέγειν, ὠφέλιμα.
 ὁμοίως δὲ καὶ ἐπὶ τῶν δικαίων. ὥστ' οὐκ εἰ

if the thief is an evil, that to acquire things is also an evil. The thief, therefore, does not wish for what is evil but for what is good ; for to acquire something good is good. Also disease is an evil, but to get rid of disease is not an evil.—Is what is just preferable to what is unjust and are just circumstances preferable to unjust ? But it is preferable to be put to death unjustly.—Is it just that each man should have his own ? But judgements which a man passes in accordance with his personal opinion, even if they are false, are valid in the eyes of the law ; the same thing, therefore, is just and not just.—Again, should judgement be given in favour of him who says what is just or of him who says what is unjust ? But it is just for the victim of injustice to state in full the things which he has suffered, and these things were unjust. For if to suffer something unjustly is an object of choice, it does not follow that unjust circumstances are preferable to just, but, absolutely, justice is preferable ; but this does not prevent unjust circumstances being preferable to just in a particular case. Again, it is just that a man should have his own, and it is not just that he should have what belongs to another ; but there is no reason why any judgement which is given in accordance with the judge's opinion should not be just ; for, if it is just in a particular case and in particular circumstances, it is not also absolutely just. Similarly, too, there is no reason why, though things are unjust, merely saying them should not be just. For if to say things is just, it does not follow that they are just, any more than, if it is expedient to say things, it follows that those things are expedient. Similarly, too, with things that are just. So that if what is said is unjust,

180 b

τὰ λεγόμενα ἄδικα, ὁ λέγων ἄδικα νικᾷ· λέγει γὰρ ἃ λέγειν ἐστὶ δίκαια, ἀπλῶς δὲ καὶ παθεῖν ἄδικα.

181 a

XXVI. Τοῖς δὲ παρὰ τὸν ὀρισμὸν γινομένοις τοῦ ἐλέγχου, καθάπερ ὑπεγράφη πρότερον, ἀπαντητέον σκοποῦσι τὸ συμπέρασμα πρὸς τὴν ἀντίφασιν, ὅπως ἔσται τὸ αὐτὸ καὶ κατὰ τὸ αὐτὸ καὶ πρὸς τὸ αὐτὸ
5 καὶ ὡσαύτως καὶ ἐν τῷ αὐτῷ χρόνῳ. ἔαν δ' ἐν ἀρχῇ προσέρηται, οὐχ ὁμολογητέον ὡς ἀδύνατον τὸ αὐτὸ εἶναι διπλάσιον καὶ μὴ διπλάσιον, ἀλλὰ φατέον, μὴ μέντοι ὡδί, ὥς ποτ' ἦν τὸ ἐλέγχεσθαι διωμολογημένον. εἰσὶ δὲ πάντες οἷδ' οἱ λόγοι παρὰ τὸ τοιοῦτο. ἄρ' ὁ εἰδὼς ἕκαστον ὅτι ἕκαστον,
10 οἶδε τὸ πρᾶγμα; καὶ ὁ ἀγνοῶν ὡσαύτως; εἰδὼς δέ τις τὸν Κορίσκον ὅτι Κορίσκος, ἀγνοοίῃ ἂν ὅτι μουσικός, ὥστε ταῦτο ἐπίσταται καὶ ἀγνοεῖ. ἄρα τὸ τετράπηχυ τοῦ τριπήχεος μείζον; γένοιτο δ' ἂν ἐκ τριπήχους τετράπηχυ κατὰ τὸ μῆκος· τὸ δὲ μείζον ἐλάττονος μείζον· αὐτὸ ἄρα αὐτοῦ μείζον καὶ ἔλαττον.

15

XXVII. Τοὺς δὲ παρὰ τὸ αἰτεῖσθαι καὶ λαμβάνειν τὸ ἐν ἀρχῇ πυνθανομένῳ μὲν, ἂν ἦ δῆλον, οὐ δοτέον, οὐδ' ἂν ἔνδοξον ἦ, λέγοντα τὰ ληθές. ἂν δὲ λάθῃ, τὴν ἀγνοίαν διὰ τὴν μοχθηρίαν τῶν

ON SOPHISTICAL REFUTATIONS, XXV-XXVII

it does not follow that it is a case of the man who uses unjust pleas winning his cause ; for he is saying things which it is just for him to say but which are, absolutely, unjust for anyone to suffer.

XXVI. Refutations which are connected with the definition of the refutation must, as suggested above,^a be met by examining the conclusion in the light of its contradictory and seeing how the same term shall be present in the same respect and in the same relation, manner and time. In putting this additional question at the beginning, you must not admit that it is impossible for the same thing to be both double and not double but must admit the possibility but not in the way that was once admitted to fulfil the conditions of a refutation. All the following arguments depend upon a point of this kind. ' Does he who knows that A is A, know the thing A ? ' And, similarly, ' Does he who does not know that A is A, not know the thing A ? ' But one who knows that Coriscus is Coriscus, might not know that he is musical, so that he both knows and is ignorant of the same thing.—Again, ' Is an object which is four cubits long greater than an object which is three cubits long ? ' But an object three cubits long might become four cubits long. Now the greater is greater than the less ; therefore the object is itself greater and less than itself.

XXVII. In refutations which are connected with the begging and assuming of the original point at issue, it should not be granted to a questioner, if his procedure is obvious, even though his view is generally accepted, but you should state the truth. If, on the other hand, his procedure is not detected, you should, owing to the badness of such arguments,

(3) *Ignoratio
elenchi.*

(4) *Petitio
principii.*

τοιούτων λόγων εἰς τὸν ἐρωτῶντα μεταστρεπτέον
ὥς οὐ διειλεγμένον· ὁ γὰρ ἔλεγχος ἄνευ τοῦ ἐξ
20 ἀρχῆς. εἰθ' ὅτι ἐδόθη οὐχ ὥς τούτῳ χρησομένου,
ἀλλ' ὥς πρὸς τοῦτο συλλογιουμένου τοῦναντίον ἢ
ἐπὶ τῶν παρεξελέγχων.

XXVIII. Καὶ τοὺς διὰ τοῦ παρεπομένου συμ-
βιβάζοντας ἐπ' αὐτοῦ τοῦ λόγου δεικτέον. ἔστι δὲ
διττὴ ἡ τῶν ἐπομένων ἀκολουθήσις. ἡ γὰρ ὥς τῷ
25 ἐν μέρει τὸ καθόλου, οἷον ἀνθρώπῳ ζῶον· ἀξιοῦται
γάρ, εἰ τόδε μετὰ τοῦδε, καὶ τόδ' εἶναι μετὰ τοῦδε.
ἡ κατὰ τὰς ἀντιθέσεις· εἰ γὰρ τόδε τῷδε ἀκολουθεῖ,
τῷ ἀντικειμένῳ τὸ ἀντικείμενον. παρ' ὃ καὶ ὁ τοῦ
Μελίσσου λόγος· εἰ γὰρ τὸ γεγονὸς ἔχει ἀρχήν, τὸ
ἀγέννητον ἀξιοῖ μὴ ἔχειν, ὥστ' εἰ ἀγέννητος ὁ οὐρα-
30 νός, καὶ ἄπειρος. τὸ δ' οὐκ ἔστιν· ἀνάπαλιν γὰρ
ἡ ἀκολουθήσις.

XXIX. Ὅσοι τε παρὰ τὸ προστιθέναι τι συλλο-
γίζονται, σκοπεῖν εἰ ἀφαιρουμένου συμβαίνει μηδὲν
ἦττον τὸ ἀδύνατον. καῖπειτα τοῦτο ἐμφανιστέον,
καὶ λεκτέον ὥς ἔδωκεν οὐχ ὥς δοκοῦν ἀλλ' ὥς
35 πρὸς τὸν λόγον, ὁ δὲ κέχρηται οὐδὲν πρὸς τὸν
λόγον.

XXX. Πρὸς δὲ τοὺς τὰ πλείω ἐρωτήματα ἐν
ποιούντας εὐθὺς ἐν ἀρχῇ διοριστέον. ἐρώτησις
γὰρ μία πρὸς ἣν μία ἀπόκρισις ἔστιν, ὥστ' οὔτε

ON SOPHISTICAL REFUTATIONS, XXVII-XXX

make your ignorance recoil on the head of the questioner, on the ground that he has not argued properly ; for refutation must proceed without any assumption of the original point. Next, you must argue that the point was granted with the idea that he was going to use it not as a premiss but in order to argue the opposite view to it or for the purpose of refutations on side issues.

XXVIII. Again, those refutations which draw their conclusions through the consequent must be exposed in the argument itself. There are two ways in which consequences follow : Either as the universal follows from the particular, as ' animal ' follows from ' man ' ; for it is claimed that, if A accompanies B, then B also accompanies A. Or else the process goes by opposites ; for if A follows B, A's opposite will follow B's opposite. It is on this, too, that the argument of Melissus depends ; for he claims that, if that which has come to be has a beginning, that which has not come to be has no beginning, and so, if the heaven has not come to be, it is also eternal. But this is not true ; for the sequence is the reverse.

XXIX. In refutations which are argued by means of some addition, you must examine whether the impossibility occurs none the less when the addition has been withdrawn. If so, then the answerer should make this fact clear and should state that he granted the addition not because he believed in it but for the sake of the argument, but that his opponent has made no use of it at all for his argument.

XXX. In dealing with those who make several questions into one, you should draw a distinction immediately at the beginning. For a question is single to which there is only one answer, so that one

(5) The consequent.

(6) Insertion of irrelevant matter.

(7) Multiplicity of questions.

181 a

πλείω καθ' ἐνὸς οὔτε ἐν κατὰ πολλῶν, ἀλλ' ἐν καθ'

181 b

ἐνὸς φατέον ἢ ἀποφατέον. ὥσπερ δὲ ἐπὶ τῶν ὁμω-
νύμων ὅτε μὲν ἀμφοῖν ὅτε δ' οὐδετέρῳ ὑπάρχει,
ὥστε μὴ ἀπλοῦ ὄντος τοῦ ἐρωτήματος ἀπλῶς ἀπο-
κρινομένοις οὐδὲν συμβαίνει πάσχειν, ὁμοίως καὶ
ἐπὶ τούτων. ὅταν μὲν οὖν τὰ πλείω τῷ ἐνὶ ἢ τὸ
5 ἐν τοῖς πολλοῖς ὑπάρχη, τῷ ἀπλῶς δόντι καὶ ἀμαρ-
τόντι ταύτην τὴν ἀμαρτίαν οὐδὲν ὑπεναντίωμα
συμβαίνει· ὅταν δὲ τῷ μὲν τῷ δὲ μή, ἢ πλείω κατὰ
πλειόνων, καὶ ἔστιν ὡς ὑπάρχει ἀμφοτέρω
ροῖς, ἔστι δ' ὡς οὐχ ὑπάρχει πάλιν, ὥστε τοῦτ'
εὐλαβητέον. οἷον ἐν τοῖσδε τοῖς λόγοις. εἰ τὸ μὲν
10 ἔστιν ἀγαθὸν τὸ δὲ κακόν, ὅτι ταῦτα ἀληθὲς εἰπεῖν
ἀγαθὸν καὶ κακὸν καὶ πάλιν μήτ' ἀγαθὸν μήτε
κακόν (οὐκ ἔστι γὰρ ἐκάτερον ἐκάτερον), ὥστε
ταῦτ' ἀγαθὸν καὶ κακὸν καὶ οὐτ' ἀγαθὸν οὔτε κακόν.
καὶ εἰ ἕκαστον αὐτὸ αὐτῷ ταυτόν, καὶ ἄλλου ἕτερον,
ἐπειδὴ¹ οὐκ ἄλλοις ταῦτ' ἀλλ' αὐτοῖς, καὶ ἕτερα
15 αὐτῶν, ταῦτ' αὐτοῖς ἕτερα καὶ ταῦτά. ἔτι εἰ τὸ
μὲν ἀγαθὸν κακὸν γίνεται, τὸ δὲ κακὸν ἀγαθόν
ἔστιν, δύο γένοιτ' ἄν. δυοῖν τε καὶ ἀνίσων ἐκάτε-
ρον αὐτὸ αὐτῷ ἴσον, ὥστε ἴσα καὶ ἄνισα αὐτὰ
αὐτοῖς.

Ἐμπίπτουσι μὲν οὖν οὗτοι καὶ εἰς ἄλλας λύσεις·
20 καὶ γὰρ τὸ ἄμφω καὶ τὸ ἅπαντα πλείω σημαίνει·
οὐκ οὐν ταυτόν, πλὴν ὄνομα, συμβαίνει φῆσαι καὶ

¹ Reading ἐπειδὴ for ἐπεὶ δ' with Poste.

ON SOPHISTICAL REFUTATIONS, xxx

must not affirm or deny several things of one thing nor one thing of several things, but one thing of one thing. But just as in the case of equivocal terms, a predicate is sometimes true of both meanings and sometimes of neither, and so, though the question is not simple, no detriment results if people give a simple answer, so too with these double questions. When, therefore, the several predicates are true of one subject, or one predicate of several subjects, no contradiction is involved in giving a simple answer, though he has made this mistake. But when the predicate is true of one subject but not of the other, or several predicates are true of several subjects, then there is a sense in which both are true of both but another sense, on the other hand, in which they are not : so one must be on one's guard against this. The following arguments illustrate this : (1) Supposing A is good and B evil, it is true to say that they are good and evil and, on the other hand, that they are neither good nor evil (for A is not evil and B is not good), so that the same thing is good and evil and neither good nor evil ; (2) If everything is the same as itself and different from anything else, since things are not the same as other things but the same as themselves, and also different from themselves, the same things are both different from themselves and the same as themselves ; (3) Moreover, if that which is good becomes evil and that which is evil is good, they would become two ; and of two unequal things each is equal to itself, so that they are both equal and unequal to themselves.

These refutations also fall under other solutions ; for the terms ' both ' and ' all ' have several meanings, so that to affirm or deny the same thing is verbal only,

181 b

ἀποφῆσαι· τοῦτο δ' οὐκ ἦν ἔλεγχος. ἀλλὰ φανερόν
ὅτι μὴ μιᾶς ἐρωτήσεως τῶν πλειόνων γινομένης,¹
ἀλλ' ἐν καθ' ἑνὸς φάντος ἢ ἀποφάντος, οὐκ ἔσται
τὸ ἀδύνατον.

- 25 XXXI. Περὶ δὲ τῶν ἀπαγόντων εἰς τὸ² ταῦτο
πολλάκις εἰπεῖν, φανερόν ὡς οὐ δοτέον τῶν πρὸς
τι λεγομένων σημαίνειν τι χωριζομένης καθ' αὐτὰς
τὰς κατηγορίας, οἷον διπλάσιον ἄνευ τοῦ διπλάσιον
ἡμίσεος, ὅτι ἐμφαίνεται. καὶ γὰρ τὰ δέκα ἐν τοῖς
30 ἐνὸς δέουσι δέκα καὶ τὸ ποιῆσαι ἐν τῷ μὴ ποιῆσαι,
καὶ ὅλως ἐν τῇ ἀποφάσει ἢ φάσει· ἀλλ' ὅμως οὐκ
εἴ τις λέγοι τοδὶ μὴ εἶναι λευκόν, λέγει αὐτὸ λευκὸν
εἶναι. τὸ δὲ διπλάσιον οὐδὲ σημαίνει οὐδὲν ἴσως,
ὥσπερ οὐδὲ τὸ ἐν τῷ ἡμίσει· εἰ δ' ἄρα καὶ σημαίνει,
ἀλλ' οὐ ταῦτο καὶ συνηρημένον. οὐδ' ἡ ἐπιστήμη
35 ἐν τῷ εἶδει, οἷον εἰ ἔστιν ἡ ἰατρικὴ ἐπιστήμη, ὅπερ
τὸ κοινόν· ἐκεῖνο δ' ἦν ἐπιστήμη ἐπιστητοῦ. ἐν
δὲ τοῖς δι' ὧν δηλοῦται κατηγορουμένοις τοῦτο
λεκτέον, ὡς οὐ τὸ αὐτὸ χωρὶς καὶ ἐν τῷ λόγῳ τὸ
δηλούμενον. τὸ γὰρ κοῖλον κοινῇ μὲν τὸ αὐτὸ
δηλοῖ ἐπὶ τοῦ σιμοῦ καὶ τοῦ ῥοικοῦ, προστιθέμενον
182 a δὲ οὐδὲν κωλύει ἄλλα, τὸ μὲν τῇ ῥινὶ τὸ δὲ τῷ
σκέλει, σημαίνειν³. ἔνθα μὲν γὰρ τὸ σιμόν, ἔνθα δὲ

¹ Reading γινομένης for γινομένων.

² Inserting τὸ before ταῦτο.

³ Reading σημαίνειν (σημαίνει ABD).

ON SOPHISTICAL REFUTATIONS, xxx-xxxi

and this, as we saw, is not a refutation. But clearly, if one of the several questions is not asked but the answerer affirms or denies a single predicate of a single subject, the reduction to an impossibility will not occur.

XXXI. As regards those who lead one on to repeat the same thing several times over, it is clear that one must not allow that predications of relative terms have any signification in themselves when separated from their correlatives; for example, that 'double' apart from the expression 'double of half' is significant, just because it appears in that expression. For 'ten' appears in the expression 'ten minus one' and 'do' in the expression 'not do,' and affirmations in general in negations; but, all the same, if one were to say 'this is not white,' one is not saying that it is white. 'Double' has possibly no signification at all, just as 'the' in 'the half' too signifies nothing. If it *has* any signification, it is not the same as in the combined expression. Nor is 'knowledge' of a specific kind, such as 'medical knowledge,' the same as 'knowledge' as a general term; for the latter has always meant 'knowledge of the knowable.' When dealing with terms which are predicated of the terms by means of which they are defined, you must say that the term defined is not the same when taken separately as it is in the combined expression. For 'concave' has the same general meaning when used of the snub-nosed and of the bandy-legged, but when it is combined in the one case with the nose and in the other with the leg, there is no reason why it should not signify different things, for in the first case it signifies 'snub,' in the other 'bandy,' and it makes

(B) Solution of arguments tending to BABBLING.

182 a

τὸ ραιβὸν σημαίνει· καὶ οὐδὲν διαφέρει εἰπεῖν ρῖς
 σιμὴ ἢ ρῖς κοίλη. ἔτι οὐ δοτέον τὴν λέξιν κατ'
 εὐθύ· ψεῦδος γάρ ἐστιν. οὐ γάρ ἐστι τὸ σιμὸν ρῖς
 5 κοίλη ἀλλὰ ρινὸς τοδί, οἶον πάθος, ὥστ' οὐδὲν
 ἄτοπον, εἰ ἢ ρῖς ἢ σιμὴ ρῖς ἐστιν ἔχουσα κοιλότητα
 ρινός.

XXXII. Περὶ δὲ τῶν σολοικισμῶν, παρ' ὃ τι
 μὲν φαίνονται συμβαίνειν, εἵπομεν πρότερον, ὥς
 δὲ λυτέον, ἐπ' αὐτῶν τῶν λόγων ἔσται φανερόν.
 10 ἅπαντες γὰρ οἱ τοιοῖδε τοῦτο βούλονται κατα-
 σκευάζειν. ἄρ' ὁ λέγεις ἀληθῶς, καὶ ἔστι τοῦτο
 ἀληθῶς; φῆς δ' εἶναί τι λίθον· ἔστιν ἄρα τι λίθον.
 ἢ τὸ λέγειν λίθον οὐκ ἔστι λέγειν ὁ ἄλλ' ὄν, οὐδὲ
 τοῦτο ἀλλὰ τοῦτον· εἰ οὖν ἔροιτό τις, ἄρ' ὄν ἀληθῶς
 λέγεις, ἔστι τοῦτον, οὐκ ἂν δοκοίη ἐλληνίζειν,
 15 ὥσπερ οὐδ' εἰ ἔροιτο, ἄρ' ἦν λέγεις εἶναι, ἔστιν
 οὗτος; ξύλον δ' εἰπεῖν οὕτως,¹ ἢ ὅσα μήτε θῆλυ
 μήτ' ἄρρεν σημαίνει, οὐδὲν διαφέρει. διὸ καὶ οὐ
 γίνεται σολοικισμός, εἰ ὁ λέγεις εἶναι, ἔστι τοῦτο;
 ξύλον δὲ λέγεις εἶναι· ἔστιν ἄρα ξύλον. ὁ δὲ λίθος
 καὶ τὸ οὗτος ἄρρενος ἔχει κλήσιν. εἰ δέ² τις ἔροιτο,
 ἄρ' οὗτός ἐστιν αὕτη; εἴτα πάλιν, τί δ'; οὐχ
 20 οὗτός ἐστι Κορίσκος; εἴτ' εἴπειεν, ἔστιν ἄρα οὗτος
 αὕτη, οὐ συλλελόγισται τὸν σολοικισμόν, οὐδ' εἰ

¹ Reading εἰπεῖν οὕτως for εἶπεν οὗτος.

² Reading δέ for δῆ.

^a 165 b 20 f.

^b The argument is clear in the original, because Greek is an inflected language, whereas English does not distinguish

ON SOPHISTICAL REFUTATIONS, XXXI-XXXII

no difference whether you say ' a snub nose ' or ' a coneave nose.' Further, the expression must not be allowed to pass without qualification ; for it is a falsehood. For snubness is not a coneave nose but something, namely a condition, appertaining to a nose ; so there is nothing absurd in supposing that a snub nose is one which possesses nasal concavity.

XXXII. As regards solecisms, we have already stated ^a the apparent cause of their occurrence ; how they should be solved will be clear in the actual arguments. All the following arguments aim at producing this result : ' Is a thing truly that which you truly affirm it to be ? ' You affirm something to be a stone (accusative masculine) ^b ; therefore something (nominative neuter) is a stone (accusative masculine). Or does speaking of a stone (a masculine word) involve the use of the relative ' whom ' rather than ' which ' and the pronoun ' him ' rather than ' it ' ? If, then, one were to ask, ' Is a stone *him whom* you truly state him to be ?, ' he would not be considered to be talking good Greek any more than if he were to ask, ' Is *he* whom you state *her* to be ? ' But the use of the word ' stick, ' or any other neuter word, in this way, involves no difference between the nominative and accusative ; therefore no solecism is committed if you say, ' Is this what you affirm it to be ? ' You affirm it to be a stick ; therefore it is a stick. ' Stone, ' however, and ' he ' have the masculine gender. Now if one were to ask, ' Can " he " be a " she " ?, ' and then again, ' Why ? Is he not Coriseus ? ' and then were to say, ' Then he is a she, ' he has not proved the solecism even if Coriseus

(C) Solution of arguments tending to SOLECISM.

between the nominative and accusative except in the personal pronouns and the relative.

182 a

τὸ Κορίσκος σημαίνει ὅπερ αὕτη, μὴ δίδωσι δὲ
ὁ ἀποκρινόμενος, ἀλλὰ δεῖ τοῦτο προσερωτηθῆναι.
εἰ δὲ μήτ' ἔστιν μήτε δίδωσιν, οὐ συλλελόγισται
οὔτε τῷ ὄντι οὔτε πρὸς τὸν ἠρωτημένον. ὁμοίως
25 οὖν δεῖ κακεῖ τὸν λίθον σημαίνειν οὗτος. εἰ δὲ
μήτε ἔστι μήτε δίδοται, οὐ λεκτέον τὸ συμπέρασμα·
φαίνεται δὲ παρὰ τὸ τὴν ἀνόμοιον πτώσιν τοῦ
ὀνόματος ὁμοίαν φαίνεσθαι. ἄρ' ἀληθές ἐστιν εἰ-
πεῖν ὅτι ἔστιν αὕτη, ὅπερ εἶναι φῆς αὐτήν; εἶναι
δὲ φῆς ἀσπίδα· ἔστιν ἄρα αὕτη ἀσπίδα. ἢ οὐκ
30 ἀνάγκη, εἰ μὴ τὸ αὕτη ἀσπίδα σημαίνει ἀλλ' ἀσπὶς,
τὸ δ' ἀσπίδα ταύτην; οὐδ' εἰ ὁ φῆς εἶναι τοῦτον,
ἐστὶν οὗτος, φῆς δ' εἶναι Κλέωνα, ἔστιν ἄρα οὗτος
Κλέωνα· οὐ γὰρ ἔστιν οὗτος Κλέωνα· εἴρηται γὰρ
ὅτι ὁ φημι εἶναι τοῦτον, ἔστιν οὗτος, οὐ τοῦτον·
οὐδὲ γὰρ ἂν ἐλληνίζοι οὕτως τὸ ἐρώτημα λεχθέν.
35 ἄρ' ἐπίστασαι τοῦτο; τοῦτο δ' ἐστὶ λίθος· ἐπί-
στασαι ἄρα λίθος. ἢ οὐ ταὐτὸ σημαίνει τὸ τοῦτο
ἐν τῷ ἄρ' ἐπίστασαι τοῦτο καὶ ἐν τῷ τοῦτο δὲ
λίθος, ἀλλ' ἐν μὲν τῷ πρώτῳ τοῦτον, ἐν δὲ τῷ
υστερώ οὗτος; ἄρ' οὐ ἐπιστήμην ἔχεις, ἐπίστασαι
τοῦτο; ἐπιστήμην δ' ἔχεις λίθου· ἐπίστασαι ἄρα
182 b λίθου. ἢ τὸ μὲν τούτου λίθου λέγεις, τὸ δὲ τοῦτον

^a But Cleon.

signifies a 'she,' though the answerer refuses to concede this; but this must be the subject of a further question. But if neither this is so nor does he concede it, then the solecism has not been proved either in fact or relatively to the person to whom the question was put. Similarly, therefore, in the first example also, 'he' must signify the stone. If, however, this is neither true nor is conceded, the conclusion must not be stated, though it is apparently true, because the case which is used of the word, which is unlike, appears to be like.—'Is it true to say that this object is what you affirm it to be?' You affirm it to be a shield (accusative), therefore it is a shield (accusative). Or is this not necessarily so, if 'this object' (nominative) signifies not shield (accusative) but shield (nominative), while 'this object' (accusative) signifies shield (accusative).—Nor again if he is what you affirm him to be, and you affirm him to be Cleona (accusative of Cleon), is he therefore Cleona? for he is not Cleona^a; for the statement was that *he* not *him* is what I affirm him to be. For the question if asked in this form^b would not be Greek either.—'Do you know this?' But this is a stone (nominative); therefore you know a stone (nominative). Has not 'this' a different force in the question 'Do you know this?' and in 'This is a stone,' in the first case standing for an accusative and in the second for a nominative?—When you exercise recognition of an object, do you not recognize it? You exercise recognition of a stone; therefore you recognize 'of a stone.' Do you not in the one case put the object in the genitive and say 'of the stone,' and in the other case in the accusative and

^b *i.e.* with the subject in the accusative.

λίθον· ἐδόθη δ', οὐδ' ἐπιστήμην ἔχεις, ἐπίστασθαι, οὐ
τούτου, ἀλλὰ τοῦτο, ὥστ' οὐ λίθου ἀλλὰ τὸν λίθον.

Ὅτι μὲν οὖν οἱ τοιοῦτοι τῶν λόγων οὐ συλλογί-
ζονται σολοικισμόν ἀλλὰ φαίνονται, καὶ διὰ τί τε
5 φαίνονται καὶ πῶς ἀπαντητέον πρὸς αὐτούς,
φανερὸν ἐκ τῶν εἰρημένων.

XXXIII. Δεῖ δὲ καὶ κατανοεῖν ὅτι πάντων τῶν
λόγων οἱ μὲν εἰσι ῥάους κατιδεῖν οἱ δὲ χαλεπώ-
τεροι, παρὰ τί καὶ ἐν τίνι παραλογίζονται τὸν
ἀκούοντα, πολλάκις οἱ αὐτοὶ ἐκείνοις ὄντες. τὸν αὐ-
10 τὸν γὰρ λόγον δεῖ καλεῖν τὸν παρὰ ταῦτό γινό-
μενον· ὁ αὐτὸς δὲ λόγος τοῖς μὲν παρὰ τὴν λέξιν
τοῖς δὲ παρὰ τὸ συμβεβηκὸς τοῖς δὲ παρ' ἕτερον
δόξειεν ἂν εἶναι διὰ τὸ μεταφερόμενον ἕκαστον μὴ
ὁμοίως εἶναι δῆλον. ὥσπερ οὖν ἐν τοῖς παρὰ τὴν
ὁμωνυμίαν, ὅσπερ δοκεῖ τρόπος εὐηθέστατος εἶναι
15 τῶν παραλογισμῶν, τὰ μὲν καὶ τοῖς τυχοῦσιν ἐστὶ
δῆλα (καὶ γὰρ οἱ λόγοι σχεδὸν οἱ γελοῖοι πάντες εἰσὶ
παρὰ τὴν λέξιν), οἷον ἀνὴρ ἐφέρετο κατὰ κλίμακος
δίφρον, καὶ ὅπου στέλλεσθε; πρὸς τὴν κεραίαν.
καὶ ποτέρα τῶν βοῶν ἔμπροσθεν τέξεται; οὐδετέρα,
ἀλλ' ὅπισθεν ἄμφω. καὶ καθαρὸς ὁ βορέας; οὐ
20 δῆτα· ἀπεκτόνηκε γὰρ τὸν πτωχὸν καὶ τὸν ὠνού-
μενον. ἄρ' Εὐάρχος; οὐ δῆτα, ἀλλ' Ἀπολλωνίδης.

^a The two meanings of the phrase are uncertain; the Oxford translation suggests (1) 'a man got the body of the car taken off its chassis,' and (2) 'he came a "sitter" (δίφρος) down from the ladder.'

^b The reply takes the word in the sense of 'To what do you fasten the sail when you furl it?'

^c The answer understands the question to mean 'which cow will calve forwards?'

say 'a stone'? But it was granted that, when you exercise recognition of a thing, you recognize 'it' not 'of it,' so that you recognize not 'of a stone' but 'a stone.'

That arguments of this kind, then, do not prove solecism but only appear to do so, and why they appear to do so and how you must face them, is clear from what has been said.

XXXIII. It must be noted about arguments in general that in some it is easier and in some more difficult to see why and where they mislead the listener, though often the latter are identical with the former. For an argument must be called identical when it depends on the same principle, but the same argument might be held by some people to depend on diction, by others on accident and by others on something else, because each, when applied in different contexts, is not equally clear. So, just as fallacies due to equivocation, which are generally regarded as the stupidest form of fallacy, some are obvious even to ordinary minds (for almost all the most laughable remarks depend upon diction). For example, 'A man was carried over the standing board of the framework of the chariot'^a; and 'Whither are you bound?' 'To the yard-arm'^b; 'Which of the two cows will calve in front?' 'Neither, but both behind.'^c 'Is the north wind'^d clear?' 'No, certainly not; for he has killed the beggar and the purchaser.'^e 'Is he Evarchus?' 'Certainly not; he is Apollonides.'^f

Note on the comparative degrees of difficulty in the detection of fallacies.

^a The answerer takes Boreas as a proper name.

^e καὶ τὸν ὠνούμενον is almost certainly corrupt; Poste suggests καὶ τίς ὁ ὠνούμενος;

^f The literal meaning of these names might be rendered 'good-manager' and 'squanderson.'

182 b

τὸν αὐτὸν δὲ τρόπον καὶ τῶν ἄλλων σχεδὸν οἱ πλεῖστοι, τὰ δὲ καὶ τοὺς ἐμπειροτάτους φαίνεται λανθάνειν· σημεῖον δὲ τούτων ὅτι μάχονται πολλάκις περὶ τῶν ὀνομάτων, οἷον πότερον ταῦτ' ὀνομαζομένην κατὰ πάντων τὸ ὄν καὶ τὸ ἐν ἢ ἕτερον. τοῖς μὲν γὰρ δοκεῖ ταῦτ' ὀνομαζομένην τὸ ὄν καὶ τὸ ἐν· οἱ δὲ τὸν Ζήνωνος λόγον καὶ Παρμενίδου λύουσι διὰ τὸ πολλαχῶς φάναι τὸ ἐν λέγεσθαι καὶ τὸ ὄν. ὁμοίως δὲ καὶ τῶν παρὰ τὸ συμβεβηκὸς καὶ παρὰ τῶν ἄλλων ἕκαστον οἱ μὲν ἔσονται ῥάους ἰδεῖν οἱ δὲ χαλεπώτεροι τῶν λόγων· καὶ λαβεῖν ἐν τίνι γένει, καὶ πότερον ἔλεγχος ἢ οὐκ ἔλεγχος, οὐ ῥάδιον ὁμοίως περὶ πάντων.

Ἔστι δὲ δριμύς λόγος ὅστις ἀπορεῖν ποιεῖ μάλιστα· δάκνει γὰρ οὗτος μάλιστα. ἀπορία δ' ἐστὶ διττή, ἢ μὲν ἐν τοῖς συλλελογισμένοις, ὃ τι ἀνέλγη τις τῶν ἐρωτημάτων, ἢ δ' ἐν τοῖς ἐριστικοῖς, πῶς εἴπῃ τις τὸ προταθέν. διόπερ ἐν τοῖς συλλογιστικοῖς οἱ δριμύτεροι λόγοι ζητεῖν μᾶλλον ποιοῦσιν. ἔστι δὲ συλλογιστικὸς μὲν λόγος δριμύτατος, ἂν ἔξ ὅτι μάλιστα δοκούντων ὅτι μάλιστα ἔνδοξον ἀναιρῇ. εἰς γὰρ ὧν ὁ λόγος μετατιθεμένης τῆς ἀντιφάσεως ἅπαντας ὁμοίους ἔξει τοὺς συλλογισμούς· αἰεὶ γὰρ ἐξ ἐνδόξων ὁμοίως ἔνδοξον ἀναιρήσει ἢ κατασκευάσει, διόπερ ἀπορεῖν ἀναγκαῖον. μάλιστα μὲν οὖν ὁ τοιοῦτος δριμύς, ὁ ἐξ ἴσου τὸ συμπέρασμα ποιῶν τοῖς ἐρωτήμασι, δεύτερος δ' ὁ ἐξ ἀπάντων ὁμοίων.

¹ Reading with Poste τῶν παρὰ τὸ συμβεβηκὸς καὶ παρὰ for τῶν περὶ τοῦ συμβεβηκότος καὶ περὶ.

And so on with almost all the rest of the ambiguities, but some even the most expert seem to fail to discern. A proof of this is that people often dispute about the terms used, for example, whether 'Being' and 'Unity' always mean the same thing or something different; for some people hold that 'Being' and 'Unity' are identical in meaning, while others solve the argument of Zeno and Parmenides by saying that 'Unity' and 'Being' are used in several senses. Similarly, too, of the arguments which are dependent on accident and each of the other classes, some will be easier to detect and others more difficult, and it is not always equally easy to grasp into which class they fall and whether refutation takes place or not.

A shrewd argument is one which causes most embarrassment; for it bites deepest. Embarrassment is of two kinds. In a reasoned discussion one is in doubt which of the questions one should subvert, whereas in contentious arguments it is about the way in which one is to express the proposition. Hence it is in reasoned discussions that shrewder arguments are more stimulative of inquiry. Now a reasoned argument is shrewdest when from the most generally accepted premisses possible it subverts the most generally accepted thesis possible. For the single argument, if the contradictory is changed about, will result in all the syllogisms being alike; for from generally accepted premisses it will subvert or establish an equally generally accepted conclusion; therefore embarrassment must necessarily arise. Such, then, is the shrewdest argument which puts the conclusion on an equality with the premisses. The next shrewdest is that which argues from premisses which are all on an equality; for this will cause an equal

Shrewdness
in argu-
ment.

οὗτος γὰρ ὁμοίως ποιήσει ἀπορεῖν ὅποιον τῶν ἐρωτημάτων ἀναιρετέον. τοῦτο δὲ χαλεπὸν· ἀναιρετέον μὲν γάρ, ὅ τι δ' ἀναιρετέον, ἄδηλον. τῶν δ' ἐριστικῶν δριμύτατος μὲν ὁ πρῶτον εὐθύς ἄδηλος πότερον συλλελογίσται ἢ οὐ, καὶ πότερον παρὰ ψεῦδος ἢ διαίρεσιν ἐστὶν ἢ λύσις, δεύτερος δὲ τῶν
 10 ἄλλων ὁ δῆλος μὲν ὅτι παρὰ διαίρεσιν ἢ ἀναίρεσιν ἐστὶ, μὴ φανερός δ' ὢν διὰ τίνος τῶν ἡρωτημένων ἀναίρεσιν ἢ διαίρεσιν λυτέος ἐστίν, ἀλλ' ἢ¹ πότερον αὕτη παρὰ τὸ συμπέρασμα ἢ παρά τι τῶν ἐρωτημάτων ἐστίν.

Ἐνίοτε μὲν οὖν ὁ μὴ συλλογισθεὶς λόγος εὐήθης
 15 ἐστίν, ἐὰν ἢ λίαν ἄδοξα ἢ ψευδῇ τὰ λήμματα· ἐνίοτε δ' οὐκ ἄξιος καταφρονεῖσθαι. ὅταν μὲν γὰρ ἐλλείπη τι τῶν τοιούτων ἐρωτημάτων, περὶ οὗ ὁ λόγος καὶ δι' ὅ, καὶ μὴ προσλαβὼν τοῦτο καὶ μὴ συλλογισάμενος εὐήθης ὁ συλλογισμὸς, ὅταν
 20 δὲ τῶν ἔξωθεν, οὐκ εὐκαταφρόνητος οὐδαμῶς, ἀλλ' ὁ μὲν λόγος ἐπικεικός, ὁ δ' ἐρωτῶν ἡρώτηκεν οὐ καλῶς.

Ἔστι τε, ὥσπερ λύειν ὅτε μὲν πρὸς τὸν λόγον ὅτε δὲ πρὸς τὸν ἐρωτῶντα καὶ τὴν ἐρώτησιν ὅτε δὲ πρὸς οὐδέτερον τούτων, ὁμοίως καὶ ἐρωτᾶν ἔστι καὶ συλλογίζεσθαι καὶ πρὸς τὴν θέσιν καὶ πρὸς τὸν
 25 ἀποκρινόμενον καὶ πρὸς τὸν χρόνον, ὅταν ἢ πλείονος χρόνου δεομένη ἢ λύσις ἢ τοῦ παρόντος καιροῦ.²

XXXIV. Ἐκ πόσων μὲν οὖν καὶ ποίων γίνονται τοῖς διαλεγομένοις οἱ παραλογισμοί, καὶ πῶς δεῖξομέν τε ψευδόμενον καὶ παράδοξα λέγειν ποιή-

¹ Reading ἀλλ' ἢ with Wallies.

² Omitting with Waitz τὸ διαλεχθῆναι πρὸς τὴν λύσιν as a gloss.

embarrassment as to which kind of question ought to be subverted. The difficulty lies in this, that something must be subverted but it is not clear what. The shrewdest of contentious arguments is that which, in the first place, immediately makes it uncertain whether the reasoning is conclusive or not, and also whether the solution is due to a false premiss or a distinction. Of the rest, that comes next which clearly depends on a distinction or a subversion, but it is not clear which of the premisses it is on the subversion or distinction of which the solution depends, but only whether this process depends upon the conclusion or one of the premisses.

Now sometimes an inadequately reasoned argument is stupid if the premisses assumed are too paradoxical or false ; but sometimes it is not deserving of contempt. For when some question is wanting such as concerns the argument or the means of carrying it on, the reasoning which has failed to supply this and is not properly argued is stupid ; but when something which is merely extraneous has been omitted, the reasoning is by no means to be lightly condemned but is respectable, though the questioner has not asked his questions well.

Stupid arguments.

As it is possible to address the solution sometimes to the argument, sometimes to the questioner and his mode of questioning and sometimes to neither of these, so likewise also it is possible to address one's questions and reasonings both to the thesis and to the answerer and to the time, when the solution needs more time than the present occasion supplies.

XXXIV. The number, then, and the nature of the sources from which fallacies arise in discussion, and how we are to show up a pretender and make him

EPI-
LOGUE.
(1) Summary of results.

183 a

30 σομεν, ἔτι δ' ἐκ τίνων συμβαίνει ὁ σολοικισμός,¹
καὶ πῶς ἐρωτητέον καὶ τίς ἡ τάξις τῶν ἐρωτη-
μάτων, ἔτι πρὸς τί χρήσιμοι πάντες εἰσὶν οἱ τοιοῦτοι
λόγοι, καὶ περὶ ἀποκρίσεως ἀπλῶς τε πάσης καὶ
πῶς λυτέον τοὺς λόγους καὶ τοὺς σολοικισμούς,²
εἰρήσθω περὶ ἀπάντων ἡμῖν ταῦτα. λοιπὸν δὲ περὶ
35 τῆς ἐξ ἀρχῆς προθέσεως ἀναμνήσασιν εἰπεῖν τι
βραχὺ περὶ αὐτῆς καὶ τέλος ἐπιθεῖναι τοῖς εἰρη-
μένοις.

183 b

Προειλόμεθα μὲν οὖν εὑρεῖν δυνάμιν τινα συλ-
λογιστικὴν περὶ τοῦ προβληθέντος ἐκ τῶν ὑπαρ-
χόντων ὡς ἐνδοξοτάτων· τοῦτο γὰρ ἔργον ἐστὶ τῆς
διαλεκτικῆς καθ' αὐτὴν καὶ τῆς πειραστικῆς. ἐπεὶ
δὲ προσκατασκευάζεται πρὸς αὐτὴν διὰ τὴν τῆς
σοφιστικῆς γειτνίασιν, ὡς οὐ μόνον πείραν δύναται
λαβεῖν διαλεκτικῶς ἀλλὰ καὶ ὡς εἰδώς, διὰ τοῦτο
οὐ μόνον τὸ λεχθὲν ἔργον ὑπεθέμεθα τῆς πραγμα-
5 τείας, τὸ λόγον δύνασθαι λαβεῖν, ἀλλὰ καὶ ὅπως
λόγον ὑπέχοντες φυλάξομεν τὴν θέσιν ὡς δι' ἐνδοξο-
τάτων ὁμοτρόπως. τὴν δ' αἰτίαν εἰρήκαμεν τούτου,
ἐπεὶ καὶ διὰ τοῦτο Σωκράτης ἠρώτα, ἀλλ' οὐκ
ἀπεκρίνετο· ὡμολόγει γὰρ οὐκ εἰδέναι. δεδήλωται
δ' ἐν τοῖς πρότερον καὶ πρὸς πόσα καὶ ἐκ πόσων
10 τοῦτο ἔσται, καὶ ὅθεν εὐπορήσομεν τούτων, ἔτι δὲ
πῶς ἐρωτητέον ἢ τακτέον τὴν ἐρώτησιν πᾶσαν, καὶ

¹ Reading with Pacius σολοικισμός for συλλογισμός.

ON SOPHISTICAL REFUTATIONS, xxxiv

utter paradoxes, and, further, in what circumstances a solecism occurs, and how to ask questions, and what is the right arrangement of questions, and, moreover, what is the use of all such arguments, and also about all answering of questions in general and in particular how to solve arguments and solecisms, on all these subjects let the treatment we have given suffice. There remains to call to mind our original purpose and say a few words about it and then bring our treatise to an end.

Our purpose, then, was to discover a faculty which could reason on the problem set before us from the most generally accepted premisses that exist; for this is the function of dialectic in itself and of the art of examination. But, since there is further added to it, on account of its close affinity with the art of sophistry, that it can undertake an examination not only dialectically but also with a pretence of knowledge, we therefore proposed as the purpose of our treatise not only the above-mentioned task of being able to conduct an argument but also the discovery how, when supporting an argument, we are to defend our thesis by means of the most generally accepted premisses in a consistent manner. Of this we have given the reason; for this was why Socrates used to ask questions but never answered them, because he confessed ignorance. An indication has been given, in what has been said above, of the number of cases in which this will apply and of the various kinds of material which can be used for this and the various sources from which we may obtain an abundance of them; moreover also how questions must be asked and about the arrangement of questions in

(2) Concluding remarks on dialectic.

² Reading with Pacius *σολοικισμούς* for *συλλογισμούς*.

περί τε ἀποκρίσεων καὶ λύσεων τῶν πρὸς τοὺς
 συλλογισμούς. δεδήλωται δὲ καὶ περὶ τῶν ἄλλων,
 ὅσα τῆς αὐτῆς μεθόδου τῶν λόγων ἐστίν. πρὸς
 δὲ τούτοις περὶ τῶν παραλογισμῶν διεληλύθαμεν,
 15 ὥσπερ εἰρήκαμεν ἤδη πρότερον. ὅτι μὲν οὖν ἔχει
 τέλος ἱκανῶς ἃ προειλόμεθα, φανερόν· δεῖ δ' ἡμᾶς
 μὴ λεληθέναι τὸ συμβεβηκὸς περὶ ταύτην τὴν
 πραγματείαν. τῶν γὰρ εὕρισκομένων ἀπάντων τὰ
 μὲν παρ' ἐτέρων ληφθέντα πρότερον πεπονημένα
 κατὰ μέρος ἐπιδέδωκεν ὑπὸ τῶν παραλαβόντων
 20 ὕστερον· τὰ δ' ἐξ ὑπαρχῆς εὕρισκόμενα μικρὰν τὸ
 πρῶτον ἐπίδοσιν λαμβάνειν εἴωθε, χρησιμωτέραν
 μέντοι πολλῶ τῆς ὕστερον ἐκ τούτων αὐξήσεως.
 μέγιστον γὰρ ἴσως ἀρχὴ παντός, ὥσπερ λέγεται· διὸ
 καὶ χαλεπώτατον· ὅσω γὰρ κράτιστον τῇ δυνάμει,
 25 τοσοῦτ' μικρότατον ὃν τῷ μεγέθει χαλεπώτατόν
 ἐστὶν ὀφθῆναι. ταύτης δ' εὐρημένης ῥᾶον τὸ προσ-
 τιθέναι καὶ συναύξειν τὸ λοιπὸν ἐστίν· ὅπερ καὶ
 περὶ τοὺς ῥητορικοὺς λόγους συμβέβηκε, σχεδὸν δὲ
 καὶ περὶ τὰς ἄλλας πάσας τέχνας. οἱ μὲν γὰρ τὰς
 ἀρχὰς εὐρόντες παντελῶς ἐπὶ μικρόν τι προήγαγον·
 30 οἱ δὲ νῦν εὐδοκιμοῦντες παραλαβόντες παρὰ πολλῶν
 οἶον ἐκ διαδοχῆς κατὰ μέρος προαγαγόντων οὕτως
 ηὐξήκασιν, Τισίας μὲν μετὰ τοὺς πρῶτους, Θρασύ-
 μαχος δὲ μετὰ Τισίαν, Θεόδωρος δὲ μετὰ τοῦτον,
 καὶ πολλοὶ πολλὰ συνενηνόχασιν μέρη· διόπερ οὐδὲν
 θαυμαστὸν ἔχειν τι πλήθος τὴν τέχνην. ταύτης δὲ

general, and about answers and solutions applicable to the reasonings employed. All the other points have also been set forth which belong to the same system of argument. In addition to these we have also explained about fallacies, as we have already remarked above. That what we purposed has been satisfactorily carried through to the end is plain ; but we must not fail to observe what has happened regarding this inquiry. In all discoveries, either the results of other people's work have been taken over and after having been first elaborated have been subsequently advanced step by step by those who took them over, or else they are original inventions which usually make progress which at first is small but of much greater utility than the later development which results from them. It is perhaps a true proverb which says that the beginning of anything is the most important ; hence it is also the most difficult. For, as it is very powerful in its effects, so it is very small in size and therefore very difficult to see. When, however, the first beginning has been discovered, it is easier to add to it and develop the rest. This has happened, too, with rhetorical composition, and also with practically all the other arts. Those who discovered the beginnings of rhetoric carried them forward quite a little way, whereas the famous modern professors of the art, entering into the heritage, so to speak, of a long series of predecessors who had gradually advanced it, have brought it to its present perfection—Tisias following the first inventors, Thrasyarchus following Tisias, Theodorus following Thrasyarchus, while numerous others have made numerous contributions ; hence it is no wonder that the art possesses a certain amplitude. Of our

(3) Originality of the

183 b

35 τῆς πραγματείας οὐ τὸ μὲν ἦν τὸ δ' οὐκ ἦν προεξεργασμένον, ἀλλ' οὐδὲν παντελῶς ὑπῆρχεν. καὶ γὰρ τῶν περὶ τοὺς ἐριστικούς λόγους μισθαρνούντων ὁμοία τις ἦν ἡ παιδείσιν τῇ Γοργίου πραγματεία. λόγους γὰρ οἱ μὲν ῥητορικούς οἱ δὲ ἐρωτητικούς ἐδίδουσιν ἐκμανθάνειν, εἰς οὓς πλείστακις ἐμπίπτειν

184 a ὥθήθησαν ἑκάτεροι τοὺς ἀλλήλων λόγους. διόπερ ταχεῖα μὲν ἄτεχνος δ' ἦν ἡ διδασκαλία τοῖς μανθάνουσι παρ' αὐτῶν· οὐ γὰρ τέχνην ἀλλὰ τὰ ἀπὸ τῆς τέχνης διδόντες παιδεύειν ὑπελάμβανον, ὥσπερ
5 ἂν εἴ τις ἐπιστήμην φάσκων παραδώσειν ἐπὶ τὸ μηδὲν πονεῖν τοὺς πόδας, εἴτα σκυτοτομικὴν μὲν μὴ διδάσκει, μηδ' ὅθεν δυνήσεται πορίζεσθαι τὰ τοιαῦτα, δοίη δὲ πολλὰ γένη παντοδαπῶν ὑποδημάτων· οὗτος γὰρ βεβοήθηκε μὲν πρὸς τὴν χρεῖαν, τέχνην δ' οὐ παρέδωκεν. καὶ περὶ μὲν τῶν ῥη-

184 b τορικῶν ὑπῆρχε πολλὰ καὶ παλαιὰ τὰ λεγόμενα, περὶ δὲ τοῦ συλλογίζεσθαι παντελῶς οὐδὲν εἵχομεν πρότερον ἄλλο λέγειν, ἀλλ' ἡ τριβῇ ζητοῦντες πολὺν χρόνον ἐπονοῦμεν. εἰ δὲ φαίνεται θεασαμένοις ὑμῖν ὥς ἐκ τοιούτων ἐξ ἀρχῆς ὑπαρχόντων ἔχειν ἡ
5 μέθοδος ἱκανῶς παρὰ τὰς ἄλλας πραγματείας τὰς ἐκ παραδόσεως ηὐξημένας, λοιπὸν ἂν εἴη πάντων ὑμῶν ἢ τῶν ἡκροαμένων ἔργον τοῖς μὲν παραλειμμένοις τῆς μεθόδου συγγνώμην τοῖς δ' εὕρημένοις πολλὴν ἔχειν χάριν.

present inquiry, however, it is not true to say that it had already been partly elaborated and partly not ; nay, it did not exist at all. For the training given by the paid teachers of contentious argument resembled the system of Gorgias. For some of them gave their pupils to learn by heart speeches which were either rhetorical or consisted of questions and answers, in which both sides thought that the rival arguments were for the most part included. Hence the teaching which they gave to their pupils was rapid but unsystematic ; for they conceived that they could train their pupils by imparting to them not an art but the results of an art, just as if one should claim to be about to communicate knowledge for the prevention of pain in the feet and then were not to teach the cobbler's art and the means of providing suitable foot-gear, but were to offer a selection of various kinds of shoes ; for he has helped to supply his need but has not imparted an art to him. Also, on the subject of rhetoric there already existed much material enunciated in the past, whereas regarding reasoning we had absolutely no earlier work to quote but were for a long time labouring at tentative researches. If, therefore, on consideration, it appears to you that, in view of such original conditions, our system is adequate when compared with the other methods which have been built up in the course of tradition, then the only thing which would remain for all of you, or those who follow our instruction, is that you should pardon the lack of completeness of our system and be heartily grateful for our discoveries.

present
treatise.

(4) Appeal
to the
reader.

DE GENERATIONE ET
CORRUPTIONE

INTRODUCTION

THAT the *De Generatione et Corruptione* is a genuine work of Aristotle has never been disputed. It belongs to the group of physical treatises which also includes the *Physics*, the *De Caelo* and the *Meteorologica*. Its composition has been generally ascribed to the period covered by Aristotle's residence in the Troad, in Mitylene and in Macedonia, that is, *circa* 347 to 335 B.C.

Professor H. H. Joachim, to whose work I am deeply indebted, tells us that during the preparation of his version for the Oxford Translation of Aristotle he realized that something more was called for. "It soon became evident," he writes, "that a mere translation would be of little or no value, since the intrinsic philosophical interest of the original depends, to a large extent, upon what it implies and presupposes. In short, Aristotle's fascinating and masterly little treatise calls for a commentary in almost every sentence. It is full of allusions to the speculations of his predecessors and contemporaries, and inextricably interwoven with the theories elaborated in his other works, particularly in the *Physics*, *De Caelo* and *Meteorologica*, of which no modern English editions exist." Anyone who attempts to translate the *De Generatione et Corruptione* must feel that a translation by itself is unsatisfactory, but the present translator

ARISTOTLE

has found it impossible, within the scope of a Loeb version, to do more than provide brief explanatory notes on some of the major obscurities and to give the references where Aristotle is obviously referring to passages in his other treatises, and to recommend those who require something more to consult Professor Joachim's masterly commentary (*Aristotle on Coming-to-be and Passing-away*, Oxford, 1922).

Amongst the other works which have been consulted most use has been made of the Latin Version of Franciscus Vatablus in vol. iii of the Berlin *Aristotle* and of *Aristotle on Coming-to-be and Passing-away : Some Comments* by Dr. W. T. Verdenius and Dr. T. H. Waszink (Leiden, 1946), which was kindly sent to me by a friend, Dr. H. J. Drossaart Lulof. The summary of the treatise given by Sir W. D. Ross in his *Aristotle* (pp. 99-108) has also been very useful.

The text which has been used is that of I. Bekker in the Berlin *Aristotle*, any divergences from which, except for obvious misprints, have been noted.

The *De Generatione et Corruptione* discusses the $\pi\acute{\alpha}\theta\eta$ to which the natural bodies in the sublunary sphere are liable, namely, "coming-to-be" ($\gamma\acute{\epsilon}\nu\epsilon\sigma\iota\varsigma$) and "passing-away" ($\phi\theta\omicron\rho\acute{\alpha}$). In Book I these processes are explained and distinguished from alteration ($\acute{\alpha}\lambda\lambda\omicron\iota\omega\sigma\iota\varsigma$) and from "growth and diminution" ($\alpha\upsilon\tilde{\xi}\eta\sigma\iota\varsigma$ καὶ $\phi\theta\acute{\iota}\sigma\iota\varsigma$); incidentally the views of Anaxagoras and Empedocles are examined and shown to be inconsistent. In the second half of the book it is shown that what comes-to-be is formed by combination ($\mu\acute{\iota}\xi\iota\varsigma$) of certain natural constituents, a process which implies "action and passion" ($\pi\omicron\iota\epsilon\acute{\iota}\nu$ καὶ $\pi\acute{\alpha}\sigma\chi\epsilon\acute{\iota}\nu$), which in their turn imply contact ($\acute{\alpha}\phi\acute{\eta}$). Book II proves that the material constituents of

COMING-TO-BE AND PASSING-AWAY

all that comes-to-be are the elements or "simple bodies," Earth, Air, Fire, and Water, and shows the manner in which they are transformed into one another and how they combine. Aristotle then briefly discusses the material, formal and final causes of "coming-to-be" and "passing-away," in particular criticizing the theory of Socrates in the *Phaedo*. He further states that the efficient cause of the double process is the sun's annual movement, and, in conclusion, shows that what "comes-to-be" is necessary, since absolute necessity is characteristic of a sequence of events which is cyclical, that is to say, continuous and returning upon itself.

MANUSCRIPTS

J = Vindobonensis, phil. Graec. 100 (10th century)

E = Parisiensis Regius 1853 (10th century)

F = Laurentianus 87. 7 (12th century)

H = Vaticanus 1027 (12th century)

L = Vaticanus 253 (14th or 15th century)

Diels = *Die Fragmente der Vorsokratiker*, by Hermann Diels (rec. W. Kranz, 5th edition, Berlin, 1934)

ΑΡΙΣΤΟΤΕΛΟΥΣ ΠΕΡΙ ΓΕΝΕΣΕΩΣ ΚΑΙ ΦΘΟΡΑΣ

Α

314 a 1 1. Περὶ δὲ γενέσεως καὶ φθορᾶς τῶν φύσει γινο-
μένων καὶ φθειρομένων, ὁμοίως κατὰ πάντων, τάς
τε αἰτίας διαιρετέον καὶ τοὺς λόγους αὐτῶν, ἔτι
δὲ περὶ αὐξήσεως καὶ ἀλλοιώσεως, τί ἐκάτερον,
5 καὶ πότερον τὴν αὐτὴν ὑποληπτέον φύσιν εἶναι
ἀλλοιώσεως καὶ γενέσεως, ἢ χωρίς, ὥσπερ δι-
ώρισται καὶ τοῖς ὀνόμασιν.

Τῶν μὲν οὖν ἀρχαίων οἱ μὲν τὴν καλουμένην
ἀπλὴν γένεσιν ἀλλοίωσιν εἶναί φασιν, οἱ δ' ἕτερον
ἀλλοίωσιν καὶ γένεσιν. ὅσοι μὲν γὰρ ἔν τι τὸ πᾶν
λέγουσιν εἶναι καὶ πάντα ἐξ ἑνὸς γεννῶσιν, τούτοις
10 μὲν ἀνάγκη τὴν γένεσιν ἀλλοίωσιν φάναι καὶ τὸ
κυρίως γινόμενον ἀλλοιοῦσθαι· ὅσοι δὲ πλείω τὴν
ὑλὴν ἑνὸς τιθέασιν, οἷον Ἐμπεδοκλῆς καὶ Ἀναξα-
γόρας καὶ Λεύκιππος, τούτοις δὲ ἕτερον. καίτοι
Ἀναξαγόρας γε τὴν οἰκείαν φωνὴν ἡγγνόησεν· λέγει

ARISTOTLE ON COMING-TO-BE AND PASSING-AWAY

BOOK I

1. IN discussing coming-to-be and passing-away of things which by nature come-to-be and pass-away, as exhibited uniformly wherever they occur, we must distinguish their causes and definitions ; further, we must deal with " growth " and " alteration," and inquire what each of these terms means, and whether we are to suppose that the nature of " alteration " and coming-to-be is the same, or whether each is of a separate nature corresponding to the names by which they are distinguished.

*Chs. 1-5.
Coming-to-be and Pas-
sing-away
are not
" altera-
tion " nor
are they
growth and
diminution.*

Of the ancient philosophers some assert that what is called " simple " coming-to-be is " alteration," while others hold that " alteration " and coming-to-be are different processes. Those who hold that the universe is a simple entity and who generate all things from a single thing, must necessarily maintain that coming-to-be is " alteration," and that what comes-to-be in the proper sense of the term undergoes " alteration." Those, on the other hand, who hold that the matter of things is more than one, must regard the two processes as different—Empedocles, for example, and Anaxagoras and Leucippus. Anaxagoras, however, misunderstood his own statement ;

*Views of
the Monists
and
Pluralists
examined.*

314 a

γοῦν ὡς τὸ γίνεσθαι καὶ ἀπόλλυσθαι ταῦτὸν
 15 καθέστηκε τῷ ἀλλοιοῦσθαι. πολλὰ δὲ λέγει τὰ
 στοιχεῖα, καθάπερ καὶ ἕτεροι. Ἐμπεδοκλῆς μὲν
 γὰρ τὰ μὲν σωματικὰ τέτταρα, τὰ δὲ πάντα μετὰ
 τῶν κινούντων ἐξ τὸν ἀριθμόν, Ἀναξαγόρας δὲ
 ἄπειρα καὶ Λεύκιππος καὶ Δημόκριτος. ὁ μὲν γὰρ
 τὰ ὁμοιομερῇ στοιχεῖα τίθησιν, οἷον ὅστοῦν καὶ
 20 σάρκα καὶ μυελόν, καὶ τῶν ἄλλων ὧν ἐκάστου
 συνώνυμον τὸ μέρος ἐστίν. Δημόκριτος δὲ καὶ
 Λεύκιππος ἐκ σωμάτων ἀδιαιρέτων τᾶλλα συγ-
 κεῖσθαι φασι, ταῦτα δ' ἄπειρα καὶ τὸ πλήθος εἶναι
 καὶ τὰς μορφάς, αὐτὰ δὲ πρὸς αὐτὰ διαφέρειν τού-
 τοις ἐξ ὧν εἰσὶ καὶ θέσει καὶ τάξει τούτων. ἐναν-
 25 τῶς δὲ φαίνονται λέγοντες οἱ περὶ Ἀναξαγόραν
 τοῖς περὶ Ἐμπεδοκλέα. ὁ μὲν γάρ φησι πῦρ καὶ
 ὕδωρ καὶ ἀέρα καὶ γῆν στοιχεῖα τέσσαρα καὶ ἀπλᾶ
 εἶναι μᾶλλον ἢ σάρκα καὶ ὅστοῦν καὶ τὰ τοιαῦτα
 τῶν ὁμοιομερῶν, οἱ δὲ ταῦτα μὲν ἀπλᾶ καὶ στοι-
 χεῖα, γῆν δὲ καὶ πῦρ καὶ ὕδωρ καὶ ἀέρα σύνθετα.
 314 b πανσπερμίαν γὰρ εἶναι τούτων.

Τοῖς μὲν οὖν ἐξ ἐνὸς πάντα κατασκευάζουσιν
 ἀναγκαῖον λέγειν τὴν γένεσιν καὶ τὴν φθορὰν ἀλ-
 λοίωσιν. αἰεὶ γὰρ μένειν τὸ ὑποκείμενον ταῦτό καὶ
 ἐν (τὸ δὲ τοιοῦτον ἀλλοιοῦσθαι φάμεν). τοῖς δὲ τὰ
 5 γένῃ πλείω ποιοῦσι διαφέρειν τὴν ἀλλοίωσιν τῆς

^a Diels, fr. 17.

^b *i.e.* compounds (though, it may be, in different propor-
 tions) of the same four simple bodies—Earth, Air, Fire and
 Water—such as wood, the metals, and blood, flesh and
 marrow in animals. Such compounds, when divided, still
 retain the same constituents.

COMING-TO-BE AND PASSING-AWAY, I. 1

for example, he says that coming-to-be and destruction constitute the same process as "being altered,"^a though, like others, he says that the elements are many. Thus Empedocles holds that the corporeal elements are four, but that all the elements, including those which create motion, are six in number, while Anaxagoras, Leucippus and Democritus hold that their number is infinite. For Anaxagoras puts down as elements things which have like parts,^b for example bone, flesh and marrow, and anything else of which the part bears the same name as the whole; whereas Democritus and Leucippus say that all other things are composed of indivisible bodies, and that these are infinite both in number and in the forms which they take, while the compounds differ from one another in their constituents and the position and arrangement of these. Anaxagoras and his school obviously take a view directly opposite to that of Empedocles and his school; for Empedocles says that Fire, Water, Air and Earth are four elements and are "simple" rather than flesh and bone and similar things which have like parts, whereas Anaxagoras and his school assert that the things which have like parts are "simple" and are elements, but that Earth, Fire, Water and Air are composite, for each of them is, they say, a "general seed-ground" for things which have like parts.

Those, therefore, who construct everything out of a single element must necessarily say that coming-to-be and passing-away are "alteration," for their substratum remains the same and one (and it is such a substratum which we say undergoes "alteration"); but those who make the kinds of things more than one must hold that "alteration" differs from coming-

γενέσεως· συνιόντων γὰρ καὶ διαλυομένων ἢ γένεσις
 συμβαίνει καὶ ἡ φθορά. διὸ λέγει τοῦτον τὸν
 τρόπον καὶ Ἐμπεδοκλῆς, ὅτι “ φύσις οὐδενὸς
 ἐστίν, ἀλλὰ μόνον μίξις τε διάλλαξις τε μιγέντων.”
 ὅτι μὲν οὖν οἰκείος ὁ λόγος αὐτῶν τῇ ὑποθέσει
 10 οὕτω φάναι, δῆλον, καὶ ὅτι λέγουσι τὸν τρόπον
 τοῦτον· ἀναγκαῖον δὲ καὶ τούτοις τὴν ἀλλοίωσιν
 εἶναι μὲν τι φάναι παρὰ τὴν γένεσιν, ἀδύνατον
 μέντοι κατὰ τὰ ὑπ’ ἐκείνων λεγόμενα. τοῦτο δ’
 ὅτι λέγομεν ὀρθῶς, ῥάδιον συνιδεῖν. ὥσπερ γὰρ
 ὀρώμεν ἡρεμούσης τῆς οὐσίας ἐν αὐτῇ μεταβολὴν
 15 κατὰ μέγεθος, τὴν καλουμένην αὔξησιν καὶ φθίσιν,
 οὕτω καὶ ἀλλοίωσιν. οὐ μὴν ἀλλ’ ἐξ ὧν λέγουσιν
 οἱ πλείους ἀρχὰς ποιοῦντες μιᾷς ἀδύνατον ἀλλοι-
 οῦσθαι. τὰ γὰρ πάθη, καθ’ ἃ φαμεν τοῦτο συμ-
 βαίνειν, διαφοραὶ τῶν στοιχείων εἰσίν, λέγω δ’
 οἶον θερμὸν ψυχρόν, λευκὸν μέλαν, ξηρὸν ὑγρόν,
 20 μαλακὸν σκληρόν καὶ τῶν ἄλλων ἕκαστον, ὥσπερ
 καὶ φησὶν Ἐμπεδοκλῆς “ ἡέλιον μὲν λευκὸν ὁρᾶν
 καὶ θερμὸν ἀπάντη, ὄμβρον δ’ ἐν πᾶσιν δνοφόντᾳ
 τε ῥιγαλέον τε,” ὁμοίως δὲ διορίζει καὶ ἐπὶ τῶν
 λοιπῶν. ὥστ’ εἰ μὴ δυνατόν ἐκ πυρὸς γενέσθαι
 ὕδωρ μηδ’ ἐξ ὕδατος γῆν, οὐδ’ ἐκ λευκοῦ μέλαν
 25 ἔσται οὐδὲν οὐδ’ ἐκ μαλακοῦ σκληρόν· ὁ δ’ αὐτὸς
 λόγος καὶ περὶ τῶν ἄλλων. τοῦτο δ’ ἦν ἀλλοίωσις.
 ἥ καὶ φανερόν ὅτι μίαν αἰὲ τοῖς ἐναντίοις ὑπο-

^a Diels, fr. 8.^b Diels, fr. 21 lines 3 and 5.

COMING-TO-BE AND PASSING-AWAY, I. 1

to-be, for coming-to-be and passing-away occur when things come together and are dissolved. This is the reason why Empedocles also is speaking to this effect, when he says that "there is no origin of anything, but only a mingling and separation of things which have been mingled."^a It is clear then, that their description of coming-to-be and passing-away in this way accords with their assumption and that they actually describe them in this way; they also must, however, admit that "alteration" is something different from coming-to-be, though they cannot possibly do so consistently with the views which they express. It is easy to see that we are correct in saying this; for just as we see changes in magnitude taking place in a thing while its substance remains unchanged (what we call "increase" and "diminution"), so also we see "alteration" occurring. Nevertheless, the statements of those who suppose the existence of more than one first principle make it impossible for "alteration" to take place. For the qualities, in respect of which we say that "alteration" occurs (for example, hot and cold, white and black, dry and moist, soft and hard, etc.) are differences affecting the elements. As Empedocles says,

The sun is white to look upon and hot
In every part, the rain is dark and chill^b;

and he likewise characterizes also the other elements. Hence, as it is impossible for Water to come-into-being from Fire, or Earth from Water, neither will black come into existence out of white, nor hard out of soft; and the same argument applies also to the other qualities. Now this is what "alteration" has always meant. From this it is also clear that it must be assumed that a single matter belongs to the "con-

314 b

θετέον ὕλην, ἃν τε μεταβάλλῃ κατὰ τόπον, ἃν τε κατ' αὐξήσιν καὶ φθίσιν, ἃν τε κατ' ἀλλοιώσιν. ἔτι δ' ὁμοίως ἀναγκαῖον εἶναι τοῦτο καὶ ἀλλοιώσιν.

315 a εἴτε γὰρ ἀλλοιώσις ἐστι, καὶ τὸ ὑποκείμενον ἐν στοιχείῳ καὶ μία ἢ πάντων ὕλη τῶν ἐχόντων εἰς ἄλληλα μεταβολήν, κἂν εἰ τὸ ὑποκείμενον ἐν, ἔστιν ἀλλοιώσις.

Ἐμπεδοκλῆς μὲν οὖν ἔοικεν ἐναντία λέγειν καὶ πρὸς τὰ φαινόμενα καὶ πρὸς αὐτὸν αὐτός. ἅμα
 5 μὲν γὰρ οὗ φησιν ἕτερον ἐξ ἐτέρου γίνεσθαι τῶν στοιχείων οὐδέν, ἀλλὰ τᾶλλα πάντα ἐκ τούτων, ἅμα δ' ὅταν εἰς ἐν συναγάγῃ τὴν ἅπασαν φύσιν πλὴν τοῦ νείκους, ἐκ τοῦ ἐνὸς γίνεσθαι πάλιν ἕκαστον. ὥστ' ἐξ ἐνὸς τινος δῆλον ὅτι διαφοραῖς
 10 τισὶ χωριζομένων καὶ πάθουσιν ἐγένετο τὸ μὲν ὕδωρ τὸ δὲ πῦρ, καθάπερ λέγει τὸν μὲν ἥλιον λευκὸν καὶ θερμόν, τὴν δὲ γῆν βαρὺ καὶ σκληρόν. ἀφαιρουμένων οὖν τούτων τῶν διαφορῶν (εἰσὶ γὰρ ἀφαιρεταὶ γενομέναί γε) δῆλον ὡς ἀνάγκη γίνεσθαι καὶ γῆν ἐξ ὕδατος καὶ ὕδωρ ἐκ γῆς, ὁμοίως δὲ καὶ τῶν ἄλλων ἕκαστον, οὐ τότε μόνον ἀλλὰ καὶ νῦν,
 15 μεταβάλλοντά γε τοῖς πάθουσιν. ἔστι δ' ἐξ ὧν εἴρηκε δυνάμενα προσγίνεσθαι καὶ χωρίζεσθαι πάλιν, ἄλλως τε καὶ μαχομένων ἀλλήλοις ἔτι τοῦ νείκους καὶ τῆς φιλίας. διόπερ καὶ τότε ἐξ ἐνὸς ἐγεννήθησαν· οὐ γὰρ δὴ πῦρ γε καὶ γῆ καὶ ὕδωρ

^a i.e. when the elements originally came-to be.

trary poles," whether they change in respect of place, or of "growth" and "diminution," or of "alteration"; furthermore, that the existence of a single matter and that of "alteration" are each as necessary as the other, for, if "alteration" takes place, then the substratum is a single element, and so all things which change into one another have a single matter, and, conversely, if the substratum is one, "alteration" takes place.

Empedocles, then, seems to contradict the observed facts and himself as well. For he denies that any one of his elements comes-to-be from any other element, but declares that all other things come-to-be from these elements, and at the same time, after collecting all nature, except Strife, together into one, he declares that each thing again comes-to-be out of the One. Hence it is clear that out of a One, when separation took place owing to certain differences and qualities, one thing came-to-be Water and another Fire, as is shown by his calling the sun "white and hot" and the earth "heavy and hard." If, therefore, these differences are taken away (and it is possible to take them away, since they came-to-be), it is clear that Earth must necessarily come-to-be out of Water, and Water out of Earth, and similarly with each of the other elements, not only then ^a but also now,^b when they undergo a change in their qualities. According to his statements, the qualities can be attached and can be separated again, especially as Strife and Love are still fighting against one another. This is also the reason why the elements were originally generated from the One; for, I suppose, Fire, Earth and Water

^b *i.e.* when according to Empedocles "Strife" is gaining the upper hand.

315 a

ἔτι ὄντα ἐν ἡν τὸ πᾶν. ἄδηλον δὲ καὶ πότερον
 20 ἀρχὴν αὐτῶν θετέον τὸ ἐν ἢ τὰ πολλά, λέγω δὲ πῦρ
 καὶ γῆν καὶ τὰ σύστοιχα τούτων. ἡ μὲν γὰρ ὡς
 ὕλη ὑπόκειται, ἐξ οὗ μεταβάλλοντα διὰ τὴν κίνησιν
 γίνονται γῆ καὶ πῦρ, τὸ ἐν στοιχείον· ἡ δὲ τοῦτο
 μὲν ἐκ συνθέσεως γίνεται συνιόντων ἐκείνων,
 ἐκείνα δ' ἐκ διαλύσεως, στοιχειωδέστερα ἐκείνα
 25 καὶ πρότερα τὴν φύσιν.

2. Ὡς τε δὴ περὶ γενέσεως καὶ φθορᾶς τῆς
 ἀπλῆς λεκτέον, πότερον ἔστιν ἢ οὐκ ἔστι καὶ πῶς
 ἐστίν, καὶ περὶ τῶν ἄλλων ἀπλῶν κινήσεων, οἷον
 περὶ αὐξήσεως καὶ ἀλλοιώσεως. Πλάτων μὲν οὖν
 30 μόνον περὶ γενέσεως ἐσκέψατο καὶ φθορᾶς, ὅπως
 ὑπάρχει τοῖς πράγμασι, καὶ περὶ γενέσεως οὐ
 πάσης ἀλλὰ τῆς τῶν στοιχείων· πῶς δὲ σάρκες ἢ
 ὀστέα ἢ τῶν ἄλλων τι τῶν τοιούτων, οὐδέν· ἔτι
 οὔτε περὶ ἀλλοιώσεως οὔτε περὶ αὐξήσεως, τίνα
 τρόπον ὑπάρχουσι τοῖς πράγμασιν. Ὡς δὲ παρὰ
 τὰ ἐπιπολῆς περὶ οὐδενὸς οὐδεὶς ἐπέστησεν ἔξω
 35 Δημοκρίτου. οὗτος δ' ἔοικε μὲν περὶ ἀπάντων
 315 b φροντίσαι, ἥδη δὲ ἐν τῷ πῶς διαφέρει. οὔτε γὰρ
 περὶ αὐξήσεως οὐδεὶς οὐδὲν διώρισεν, ὥσπερ λέ-
 γομεν, ὃ τι μὴ καὶ ὁ τυχὼν εἴπειεν, ὅτι προσιόντος
 αὐξάνονται τοῦ ὁμοίου¹ τῷ ὁμοίῳ (πῶς δὲ τοῦτο,

¹ τοῦ ὁμοίου addidi.

^a i.e. Water and Air.

^b Namely, that set up by Strife.

^c *Timaeus* 52 D ff.

COMING-TO-BE AND PASSING-AWAY, I. 1-2

did not exist separately at all while they were still one. Now it is also not clear whether we must ascribe to him the One as his starting-point, or the Many—by which I mean Fire and Earth and their co-ordinates.^a For the One, in as much as it forms, as its matter, the substratum from which Earth and Fire come-to-be through the change due to motion,^b is an element; on the other hand, in as much as the One comes-to-be through a process of composition, due to the coming together of the Many, whereas the Many are the result of dissolution, the Many are more “elementary” than the One and by nature prior to it.

2. We must, therefore, deal in general with the subject of unqualified coming-to-be and passing-away, and discuss whether they exist or not, and how they exist, and with the other simple motions, such as “growth” and “alteration.” Plato,^c it is true, investigated coming-to-be and passing-away, but only as to the manner in which passing-away is inherent in things, and as regards coming-to-be he did not deal with it in general but only that of the elements; he never inquired how flesh or bones or any other similar things came-to-be, and, further, he did not discuss how “alteration” and “growth” are present in things. In fact no one at all has applied himself to any of these subjects, except in a superficial manner, with the single exception of Democritus. He seems to have thought about them all, and from first to last he excels in his manner of treatment. For, as we assert, no one else made any definite pronouncement about “growth,” except such as any man-in-the-street might make, namely, that things grow by the coming together of like with like (without a word as

Plato's
view is too
narrow.

Views of
Democritus
and
Leucippus.

315 b

οὐκέτι), οὐδὲ περὶ μίξεως, οὐδὲ περὶ τῶν ἄλλων
 5 ὥς εἰπεῖν οὐδενός, οἷον τοῦ ποιεῖν καὶ τοῦ πάσχειν,
 τίνα τρόπον τὸ μὲν ποιεῖ τὸ δὲ πάσχει τὰς φυσικὰς
 ποιήσεις. Δημόκριτος δὲ καὶ Λεύκιππος ποιή-
 σαντες τὰ σχήματα τὴν ἀλλοίωσιν καὶ τὴν γένεσιν
 ἐκ τούτων ποιοῦσι, διακρίσει μὲν καὶ συγκρίσει
 γένεσιν καὶ φθοράν, τάξει δὲ καὶ θέσει ἀλλοίωσιν.
 10 ἐπεὶ δ' ὥντο τὰληθὲς ἐν τῷ φαίνεσθαι, ἐναντία δὲ
 καὶ ἄπειρα τὰ φαινόμενα, τὰ σχήματα ἄπειρα
 ἐποίησαν, ὥστε ταῖς μεταβολαῖς τοῦ συγκειμένου
 τὸ αὐτὸ ἐναντίον δοκεῖν ἄλλω καὶ ἄλλω, καὶ μετα-
 κινεῖσθαι μικροῦ ἐμμιγνυμένου, καὶ ὅλως ἕτερον
 φαίνεσθαι ἐνὸς μετακινήθentos· ἐκ τῶν αὐτῶν γὰρ
 15 τραγωδία καὶ κωμωδία γίνεται γραμμάτων.

Ἐπεὶ δὲ δοκεῖ σχεδὸν πᾶσιν ἕτερον εἶναι γένεσις
 καὶ ἀλλοίωσις, καὶ γίνεσθαι μὲν καὶ φθείρεσθαι
 συγκρινόμενα καὶ διακρινόμενα, ἀλλοιοῦσθαι δὲ
 μεταβαλλόντων τῶν παθημάτων, περὶ τούτων ἐπι-
 στήσασι θεωρητέον. ἀπορίας γὰρ ἔχει ταῦτα καὶ
 20 πολλὰς καὶ εὐλόγους. εἰ μὲν γὰρ ἔστι σύγκρισις
 ἢ γένεσις, πολλὰ ἀδύνατα συμβαίνει· εἰσὶ δ' αὖ
 λόγοι ἕτεροι ἀναγκαστικοὶ καὶ οὐκ εὐποροὶ διαλύειν
 ὥς οὐκ ἐνδέχεται ἄλλως ἔχειν. εἰ δὲ ἢ μὴ ἔστι σύγ-
 κρισις ἢ γένεσις, ἢ ὅλως οὐκ ἔστι γένεσις ἢ ἀλ-
 172

to how this happens), and they tell us nothing about "mixing" and practically nothing about the other terms, such as "action" and "passion," that is, how one thing acts upon and another is affected by physical action. Democritus, however, and Leucippus postulate the "figures" and make "alteration" and coming-to-be result from these, attributing coming-to-be and passing-away to their dissociation and association, and "alteration" to their arrangement and position; and, since they held that the truth consisted in appearance, and appearances are contrary to one another and infinite in number, they made the "figures" infinite in number, so that, owing to changes in the compound, the same thing seems to be contrary to different people and to be "transposed" by the mixing in of a small ingredient and to appear quite different owing to "transposition" of one constituent. For a tragedy and a comedy are composed of the same letters.

Since almost all philosophers think (a) that coming-to-be and "alteration" are different processes and (b) that things come-to-be and pass-away by "association" and "dissociation," whereas they undergo "alteration" by a change of their qualities, we must fix our attention on these views and examine them; for they present many arguable questions for discussion. For if coming-to-be is "association," many impossible situations arise; and, on the other hand, there are other compelling arguments, not easy to disentangle, to prove that coming-to-be cannot be anything else. If, on the other hand, coming-to-be is *not* "association," either coming-to-be does not

¹ εἰ δὲ scripsi : εἴτε codd.

315 b

λοίωσις, ἥ¹ καὶ τοῦτο διαλυῖσαι χαλεπὸν ὃν πειρα-
τέον.

25 Ἀρχὴ δὲ τούτων πάντων, πότερον οὕτω γίνεται
καὶ ἀλλοιοῦνται καὶ αὐξάνεται τὰ ὄντα καὶ τὰναντία
τούτοις πάσχει, τῶν πρώτων ὑπαρχόντων μεγεθῶν
ἀδιαιρέτων, ἥ οὐδὲν ἐστὶ μέγεθος ἀδιαίρετον· δια-
φέρει γὰρ τοῦτο πλείστον. καὶ πάλιν εἰ μεγέθη,
πότερον, ὡς Δημόκριτος καὶ Λεύκιππος, σώματα

30 ταῦτ' ἐστίν, ἥ ὥσπερ ἐν τῷ Τιμαίῳ, ἐπίπεδα.
τοῦτο μὲν οὖν αὐτό, καθάπερ καὶ ἐν ἄλλοις εἰρή-
καμεν, ἄλογον μέχρι ἐπιπέδων διαλυῖσαι. διὸ
μᾶλλον εὐλογον σώματα εἶναι ἀδιαίρετα. ἀλλὰ
καὶ ταῦτα πολλὴν ἔχει ἀλογίαν. ὅμως δὲ τούτοις
ἀλλοίωσιν καὶ γένεσιν ἐνδέχεται ποιεῖν, καθάπερ

35 εἴρηται, τροπῇ καὶ διαθιγῇ μετακινουῦντα τὸ αὐτὸ

316 a καὶ ταῖς τῶν σχημάτων διαφοραῖς, ὅπερ ποιεῖ
Δημόκριτος (διὸ καὶ χροιάν οὐ φησιν εἶναι· τροπῇ
γὰρ χρωματίζεσθαι), τοῖς δ' εἰς ἐπίπεδα διαιροῦσιν
οὐκέτι· οὐδὲν γὰρ γίνεται πλὴν στερεὰ συντιθε-
μένων· πάθος γὰρ οὐδ' ἐγχειροῦσι γεννᾶν οὐδὲν ἐξ
αὐτῶν.

5 Αἴτιον δὲ τοῦ ἐπ' ἔλαττον δύνασθαι τὰ ὁμολογού-
μενα συνορᾶν ἢ ἀπειρία. διὸ ὅσοι ἐνφκῆκασιν μᾶλ-
λον ἐν τοῖς φυσικοῖς, μᾶλλον δύνανται ὑποτίθεσθαι
τοιαύτας ἀρχὰς αἱ ἐπὶ πολὺ δύνανται συνείρειν·

¹ εἰ post ἥ omisi cum EH.

^a Plato, *Timaeus* 53 c ff.

^b *De Caelo* 299 a 6 ff.

^c These terms are explained in *Met.* 985 b 15 ff.

COMING-TO-BE AND PASSING-AWAY, I. 2

exist at all or it is "alteration"; or else we must try to unravel this problem too, difficult as it is.

The starting-point for dealing with all these problems is the question, "Do things which exist come-to-be and 'alter' and 'grow,' and undergo the contrary changes, because the primary existences are indivisible magnitudes? Or is no magnitude indivisible?" For it makes a great difference which view we take. Again, if primary existences are indivisible magnitudes, are they bodies, as Democritus and Leucippus assert? Or are they planes, as is the view expressed in the *Timæus*?^a To resolve them into planes and to stop at that point is, as we have said elsewhere,^b in itself contrary to reason. Hence it is more reasonable to hold that they are indivisible bodies, though this view also involves considerable irrationality. Nevertheless, as has been said, it is possible with these bodies to bring about "alteration" and coming-to-be if one "transposes" the same thing by "turning" and "intercontact"^c and by variations of the "figures," as Democritus does (hence he denies that colour exists, for coloration, he says is due to the "turning" of the "figures"); but it is impossible for those who divide bodies into planes to bring about "alteration" and coming-to-be; for, when planes are put together, nothing can result except solids; for they never even try to generate any quality from them.

The reason why we have not the power to comprehend the admitted facts is our lack of experience. Hence those who have lived in a more intimate communion with the phenomena of nature are better able to lay down such principles as can be connected together and cover a wide field; those, on the other

There are
no in-
divisible
magnitudes.

316 a

οἱ δ' ἐκ τῶν πολλῶν λόγων ἀθεώρητοι τῶν ὑπαρ-
 10 χόντων ὄντες, πρὸς ὀλίγα βλέψαντες ἀποφαίνονται
 ῥᾶον. ἴδοι δ' ἂν τις καὶ ἐκ τούτων ὅσον διαφέρουσιν
 οἱ φυσικῶς καὶ λογικῶς σκοποῦντες· περὶ γὰρ
 τοῦ ἄτομα εἶναι μεγέθη οἱ μὲν φασιν ὅτι τὸ αὐτο-
 τρίγωνον πολλὰ ἔσται, Δημόκριτος δ' ἂν φανείη
 οἰκείοις καὶ φυσικοῖς λόγοις πεπεῖσθαι. δῆλον δ'
 ἔσται ὃ λέγομεν προῖοῦσιν.

15 Ἔχει γὰρ ἀπορίαν, εἴ τις θείῃ σῶμά τι εἶναι καὶ
 μέγεθος πάντη διαιρετόν, καὶ τοῦτο δυνατόν. τί
 γὰρ ἔσται ὅπερ τὴν διαίρεσιν διαφεύγει; εἰ γὰρ
 πάντη διαιρετόν, καὶ τοῦτο δυνατόν, κἂν ἅμα εἴη
 τοῦτο πάντη διηρημένον, καὶ εἰ μὴ ἅμα διήρηται·
 κἂν εἰ τοῦτο γένοιτο, οὐδὲν ἂν εἴη ἀδύνατον.
 20 οὐκοῦν καὶ κατὰ τὸ μέσον ὡσαύτως, καὶ ὅλως δέ,
 εἰ πάντη πέφυκε διαιρετόν, κἂν διαιρεθῇ, οὐδὲν
 ἔσται ἀδύνατον γεγονός, ἐπεὶ οὐδ' ἂν εἰς μυρία
 μυριάκεις διηρημένα ᾗ, οὐδὲν ἀδύνατον· καίτοι ἴσως
 οὐδεὶς ἂν διέλοι. ἐπεὶ τοίνυν πάντη τοιοῦτόν ἐστι
 τὸ σῶμα, διηρήσθω. τί οὖν ἔσται λοιπόν; μέ-
 25 γεθος; οὐ γὰρ οἶόν τε· ἔσται γάρ τι οὐ διηρημένον,
 ᾗν δὲ πάντη διαιρετόν. ἀλλὰ μὴν εἰ μὴδὲν ἔσται

^a i.e. the Platonists.^b See *De Lin. Insec.* 968 a 9 ff.

hand, who indulge in long discussions without taking the facts into account are more easily detected as men of narrow views. One can see, too, from this the great difference which exists between those whose researches are based on the phenomenon of nature and those who inquire by a dialectical method. For on the subject of atomic magnitudes one school ^a maintains their existence on the ground that otherwise the "ideal triangle" will be many,^b while Democritus would appear to have been convinced by arguments germane to the subject and founded on the study of nature. What we mean will be clear as we proceed.

If one postulates that a body, that is, a magnitude, is divisible throughout and that such a division is possible, a difficulty arises, namely, what will the body be which escapes division? If it is divisible throughout and this procedure is possible, it might be simultaneously divided throughout, even though the divisions have not been made simultaneously, and, if this were to result, no impossibility would be involved. Therefore, supposing it is of a nature to be divisible throughout, by a series of similar bisections or on any other principle, nothing impossible will have been achieved if it has actually been divided, since, even if it has been divided into innumerable parts innumerable times, there is no impossibility, though perhaps no one would carry out this division. Since, therefore, the body is divisible throughout, let us suppose that it has been divided. What then will be left? A magnitude? No: that is impossible, since then there will be something which has not been divided, and it was divisible *throughout*. But if no body or magnitude is to be left

Difficulty caused by the assumption that bodies are divisible throughout.

316 a

σῶμα μὴδὲ μέγεθος, διαίρεσις δ' ἔσται, ἢ ἐκ
στιγμῶν ἔσται, καὶ ἀμεγέθη ἐξ ὧν σύγκειται, ἢ
οὐδὲν παντάπασιν, ὥστε καὶ γίνοιτο ἐκ μηδενὸς
καὶ εἴη συγκείμενον, καὶ τὸ πᾶν δὴ οὐδὲν ἄλλ' ἢ
30 φαινόμενον. ὁμοίως δὲ καὶ ἢ ἐκ στιγμῶν, οὐκ
ἔσται ποσόν. ὁπότε γὰρ ἤπτοντο καὶ ἐν ἡν μέγεθος
καὶ ἅμα ἦσαν, οὐδὲν ἐποιοῦν μείζον τὸ πᾶν. διαι-
ρεθέντος γὰρ εἰς δύο καὶ πλείω, οὐδὲν ἔλαττον οὐδὲ
μείζον τὸ πᾶν τοῦ πρότερον, ὥστε καὶ πᾶσαι συν-
τεθῶσιν, οὐδὲν ποιήσουσι μέγεθος. ἀλλὰ μὴν καὶ
316 b εἴ τι διαιρουμένου οἶον ἔκπρισμα γίνεται τοῦ σώ-
ματος, καὶ οὕτως ἐκ τοῦ μεγέθους σῶμά τι ἀπέρ-
χεται, ὁ αὐτὸς λόγος, ἐκείνο πῶς διαίρετόν; εἰ
δὲ μὴ σῶμα ἄλλ' εἰδός τι χωριστόν ἢ πάθος ὃ
ἀπῆλθεν, καὶ ἔστι τὸ μέγεθος στιγμαὶ ἢ ἀφαὶ τοδι
5 παθοῦσαι, ἄτοπον ἐκ μὴ μεγεθῶν μέγεθος εἶναι.
ἔτι δὲ ποῦ ἔσονται καὶ ἀκίνητοι ἢ κινούμεναι αἱ
στιγμαί; ἀφή τε αἰεὶ μία δυοῖν τινῶν, ὥς ὄντος
τινὸς παρὰ τὴν ἀφήν καὶ τὴν διαίρεσιν καὶ τὴν
στιγμήν. εἰ δὴ τις θήσεται ὅτιοῦν ἢ ὀπηλικονοῦν
σῶμα εἶναι πάντῃ διαιρετόν, πάντα ταῦτα συμ-
10 βαίνει. ἔτι ἐὰν διελὼν συνθῶ τὸ ξύλον ἢ τι ἄλλο,
πάλιν ἴσον τε καὶ ἔν. οὐκοῦν οὕτως ἔχει δηλονότι
καὶ τέμω τὸ ξύλον καθ' ὅτιοῦν σημείον. πάντῃ
ἄρα διήρηται δυνάμει. τί οὖν ἔστι παρὰ τὴν διαί-

^a i.e. the sum of the separated parts.

and yet division is to take place, the body either will consist of points, and its constituents will be things of no magnitude, or else it will be absolutely nothing ; and so it would come-to-be and be compounded of nothing, and the whole would be nothing but an illusory appearance. Similarly, if it consists of points, it will not be a magnitude ; for when the points were in contact and formed a single magnitude and were together, they did not make the whole any larger. For when it was divided into two or more parts, the whole ^a was no smaller or larger than before ; so that, if all the points were to be put together, they will not make any magnitude. Further, if, when the body is being divided, a minute portion of it, like a piece of saw-dust, is formed and in this way a body is detached from the magnitude, the same argument holds good, and the question arises : “ In what sense is this portion divisible ? ” If it was not a body which was detached but a separable form or quality, and if the magnitude is points or contacts thus qualified, it is absurd that a magnitude should be composed of things which are not magnitudes. Furthermore, where will the points be ? And, are they motionless or do they move ? Also a contact is always a contact of two things, since there is always something as well as the contact or the division or the point. All this results, if one is going to posit that any body of any size whatever is divisible throughout. Furthermore, if, after having divided a piece of wood or some other object, I put it together again, it is again both equal to what it was and a unity. Obviously this is so at whatever point I cut the wood. The wood has, therefore, been divided potentially throughout. What then, is there in the wood besides the division ? For

316 b

ρεσιν; εἰ γὰρ καὶ ἔστι τι πάθος, ἀλλὰ πῶς εἰς ταῦτα διαλύεται καὶ γίνεται ἐκ τούτων; ἢ πῶς
 15 χωρίζεται ταῦτα; ὥστ' εἴπερ ἀδύνατον ἐξ ἀφῶν ἢ στιγμῶν εἶναι τὰ μεγέθη, ἀνάγκη εἶναι σώματα ἀδιαίρετα καὶ μεγέθη. οὐ μὴν ἀλλὰ καὶ ταῦτα θεμένοις οὐχ ἦττον συμβαίνει ἀδύνατον. ἔσκεπται δὲ περὶ αὐτῶν ἐν ἑτέροις. ἀλλὰ ταῦτα πειρατέον λύειν· διὸ πάλιν ἐξ ἀρχῆς τὴν ἀπορίαν λεκτέον.

20 Τὸ μὲν οὖν ἅπαν σῶμα αἰσθητὸν εἶναι διαιρετὸν καθ' ὅτιοῦν σημεῖον καὶ ἀδιαίρετον οὐδὲν ἄτοπον· τὸ μὲν γὰρ δυνάμει διαιρετὸν, τὸ δ' ἐντελεχείᾳ ὑπάρξει. τὸ δ' εἶναι ἅμα πάντῃ διαιρετὸν δυνάμει ἀδύνατον δόξειεν ἂν εἶναι. εἰ γὰρ δυνατόν, καὶ γένοιτο, οὐχ ὥστε εἶναι ἅμα ἄμφω ἐντελεχείᾳ
 25 ἀδιαίρετον καὶ διηρημένον, ἀλλὰ διηρημένον καθ' ὅτιοῦν σημεῖον. οὐδὲν ἄρα ἔσται λοιπόν, καὶ εἰς ἀσώματον ἐφθαρμένον τὸ σῶμα, καὶ γένοιτο δ' ἂν πάλιν ἦτοι ἐκ στιγμῶν ἢ ὅλως ἐξ οὐδενός. καὶ τοῦτο πῶς δυνατόν;

Ἀλλὰ μὴν ὅτι γε διαιρεῖται εἰς χωριστὰ καὶ αἰεὶ εἰς ἐλάττω μεγέθη καὶ εἰς ἀπέχοντα καὶ κεχωρι-
 30 σμένα, φανερόν. οὔτε δὴ κατὰ μέρος διαιροῦντι εἴη ἂν ἄπειρος ἢ θρύψις, οὔτε ἅμα οἷόν τε διαιρεθῆναι κατὰ πᾶν σημεῖον (οὐ γὰρ δυνατόν) ἀλλὰ μέχρι του. ἀνάγκη ἄρα ἄτομα ἐνυπάρχειν μεγέθη ἀόρατα, ἄλλως τε καὶ εἴπερ ἔσται γένεσις καὶ φθορὰ ἢ

^a i.e. points of division and quality.

^b *Phys.* 231 a 21 ff.

^c i.e. uncuttable.

even if there is some quality, how is it dissolved into these constituents ^a and how does it come-to-be out of them? And how are these constituents separated? Therefore, since it is impossible for magnitudes to consist of contacts or points, there must be indivisible bodies and magnitudes. However, if we posit these, an equally impossible consequence arises, which has been the subject of discussion elsewhere.^b But we must try to solve these difficulties, and so the problem must be stated again from the beginning.

It is, then, in no wise absurd that every perceptible body should be divisible at any point whatsoever and also indivisible; for it will be potentially divisible and actually indivisible. But it would seem impossible that it should be, even potentially, divisible throughout at the same time; for, if that were possible, it would actually happen, with the result, not that it would actually be simultaneously both things—indivisible and divided—but that it would be divided simultaneously at any and every point. Nothing will, therefore, be left, and the body will have passed-away into a state of incorporeity, and so it also might come-to-be again either from points or absolutely from nothing. And how is this possible?

It is clear, however, that a body is divided into magnitudes which are separable and grow smaller and smaller and come apart from one another and are separated. If you divide a body piece by piece, the process of breaking it up would not be infinite, nor can it be divided simultaneously at every point (for this is not possible), but the process can only be carried on within a certain limit. There must, then, exist in a body atomic ^c magnitudes which are indivisible, especially if coming-to-be and passing-away

316 b

μὲν διακρίσει ἢ δὲ συγκρίσει. ὁ μὲν οὖν ἀναγκάζειν
 317 a δοκῶν λόγος εἶναι μεγέθη ἄτομα οὗτος ἐστίν· ὅτι
 δὲ λανθάνει παραλογιζόμενος, καὶ ἥ λανθάνει, λέ-
 γωμεν.

Ἐπεὶ γὰρ οὐκ ἔστι στιγμή στιγμής ἐχομένη, τὸ
 πάντῃ εἶναι διαιρετόν ἔστι μὲν ὥς ὑπάρχει τοῖς
 μεγέθεσιν, ἔστι δ' ὥς οὔ. δοκεῖ δ' ὅταν τοῦτο
 5 τεθῇ, καὶ ὀπιοῦν καὶ πάντῃ στιγμήν εἶναι, ὥστ'
 ἀναγκαῖον εἶναι διαιρεθῆναι τὸ μέγεθος εἰς μηδέν·
 πάντῃ γὰρ εἶναι στιγμήν· ὥστε ἢ ἐξ ἀφῶν ἢ ἐκ
 στιγμῶν εἶναι. τὸ δ' ἔστιν ὥς ὑπάρχει πάντῃ,
 ὅτι μία ὀπιοῦν ἐστί, καὶ πᾶσαι ὥς ἐκάστη, πλείους
 δὲ μιᾶς οὐκ εἰσὶν (ἐφεξῆς γὰρ οὐκ εἰσὶν), ὥστ' οὐ
 10 πάντῃ. εἰ γὰρ κατὰ μέσον διαιρετόν, καὶ κατ'
 ἐχομένην στιγμήν ἔσται διαιρετόν· οὐχὶ δέ¹. οὐ
 γάρ ἐστιν ἐχόμενον σημεῖον σημείου ἢ στιγμή
 στιγμής. τοῦτο δ' ἐστὶ διαίρεσις καὶ² σύνθεσις.

Ὡστ' ἔστι καὶ διάκρισις καὶ σύγκρισις, ἀλλ' οὐτ'
 εἰς ἄτομα καὶ ἐξ ἀτόμων (πολλὰ γὰρ τὰ ἀδύνατα)
 15 οὔτε οὕτως ὥστε πάντῃ διαίρεσιν γενέσθαι (εἰ
 γὰρ ἦν ἐχομένη στιγμή στιγμής, τοῦτ' ἂν ἦν), ἀλλ'
 εἰς μικρὰ καὶ ἐλάττω ἐστί, καὶ σύγκρισις ἐξ
 ἐλαττόνων. ἀλλ' οὐχ ἡ ἀπλή καὶ τελεία γένεσις
 συγκρίσει καὶ διακρίσει ὥρισται, ὥς τινές φασιν,
 τήν δ' ἐν τῷ συνεχεῖ μεταβολήν ἀλλοίωσιν. ἀλλὰ

¹ οὐχὶ δέ J : om. cet. codd.² καὶ II : ἦ.

are going to take place by association and dissociation respectively. This, then, is the argument which is thought to necessitate the existence of atomic magnitudes, but let us now show that it conceals a false inference, and where this false inference lies.

Since no point is contiguous to another point, the divisibility throughout of a body is possible in one sense, but not in another sense. When such divisibility is postulated, it is generally held that there is a point both anywhere and everywhere in it, so that it follows that the magnitudes must be divided until nothing is left. For, it is urged, there is a point everywhere in it, so that it consists either of contacts or of points. But divisibility-throughout is possible only in the sense that there is one point *anywhere* within it and that all its points taken separately are within it; but there are not more points than one *anywhere* in it (for the points are not "consecutive"), so that it is not divisible throughout; for then, if it was divisible at its centre, it will also be divisible at a contiguous point. But it is not; for one moment in time is not contiguous to another, nor is one point to another. So much for division and composition.

Hence both association and dissociation occur but neither into atomic magnitudes and out of them (for the impossibilities involved are numerous), nor in such a way that division-throughout occurs (for this would be possible only if point were contiguous to point); but dissociation occurs into small, or relatively small, parts, while association occurs out of relatively small parts. But unqualified and complete coming-to-be is not defined as due to association and dissociation, as some people assert, while they say that change in what is continuous is "alteration." In fact,

Coming-to-be is not due to association of small particles nor passing-away to their dissociation.

317 a

20 τοῦτ' ἐστὶν ἐν ᾧ σφάλλεται πάντα. ἔστι γὰρ
 γένεσις ἀπλῇ καὶ φθορὰ οὐ συγκρίσει καὶ διακρίσει,
 ἀλλ' ὅταν μεταβάλλῃ ἐκ τοῦδε εἰς τόδε ὅλον. οἱ
 δὲ οἷονται ἀλλοίωσιν πᾶσαν εἶναι τὴν τοιαύτην
 μεταβολήν· τὸ δὲ διαφέρει. ἐν γὰρ τῷ ὑποκειμένῳ
 τὸ μὲν ἐστὶ κατὰ τὸν λόγον, τὸ δὲ κατὰ τὴν ὕλην.
 25 ὅταν μὲν οὖν ἐν τούτοις ἡ ἢ μεταβολή, γένεσις
 ἔσται ἡ φθορά, ὅταν δ' ἐν τοῖς πάθεσι καὶ κατὰ
 συμβεβηκός, ἀλλοίωσις. διακρινόμενα δὲ καὶ συγ-
 κρινόμενα εὐφθαρτα γίνεται. ἐὰν μὲν γὰρ εἰς
 ἐλάττω ὑδάτια διαιρεθῇ, θάπτον ἀῆρ γίνεται, ἐὰν
 30 δὲ συγκριθῇ, βραδύτερον. μᾶλλον δ' ἔσται δῆλον
 ἐν τοῖς ὕστερον. νῦν δὲ τοσοῦτον διωρίσθω, ὅτι
 ἀδύνατον εἶναι τὴν γένεσιν σύγκρισιν, οἷαν δὴ τινὲς
 φασιν.

3. Διωρισμένων δὲ τούτων, πρῶτον θεωρητέον
 πότερον ἔστι τι γινόμενον ἀπλῶς καὶ φθειρόμενον,
 ἢ κυρίως μὲν οὐδέν, ἀεὶ δ' ἐκ τινος καὶ τί, λέγω δ'
 35 οἷον ἐκ κάμνοντος ὑγιαῖνον καὶ κάμνον ἐξ ὑγιαί-
 317 b νοντος, ἢ μικρὸν ἐκ μεγάλου καὶ μέγα ἐκ μικροῦ,
 καὶ τᾶλλα πάντα τοῦτον τὸν τρόπον. εἰ γὰρ ἀπλῶς
 ἔσται γένεσις, ἀπλῶς ἂν γίνοιτο ἐκ μὴ ὄντος, ὥστ'
 ἀληθὲς ἂν εἶη λέγειν ὅτι ὑπάρχει τισὶ τὸ μὴ ὄν.

^a 328 a 23-b 22.

COMING-TO-BE AND PASSING-AWAY, I. 2-3

this is where the whole mistake occurs ; for unqualified coming-to-be and passing-away are not due to association and dissociation, but take place when something as a whole changes from " this " to " that." But some philosophers hold that all such change is " alteration," whereas there is a difference. For in that which underlies the change there is a factor corresponding to the definition and a material factor ; when, therefore, the change takes place in these, coming-to-be or passing-away will occur, but, when the change is in the qualities (that is to say, there is an accidental change), " alteration " will result. Things which are associated and dissociated become liable to pass-away ; for if drops of water are divided into still smaller drops, air comes-to-be from them more quickly, whereas, if they are associated together, air comes-to-be more slowly. This, however, will be clearer in what follows ^a ; for the moment let us assume this much as established, namely, that coming-into-being cannot be association of the kind which some people assert it to be.

3. Having made the above distinctions, we must first inquire whether there is anything which comes-to-be and passes-away in an unqualified sense, or whether nothing comes-to-be in the strict sense, but everything comes-to-be *something*, and out of *something*—for example, comes-to-be healthy out of being ill, and ill out of being healthy, or small out of being large, and large out of being small, and so on in the other instances which one might give. For, if there is to be coming-to-be without qualification, something must come-to-be out of not-being without qualification, so that it would be true to say that there are things of which " not-being " can be predicated ; for

Do unqualified coming-to-be and passing-away actually occur ?

317 b

τις μὲν γὰρ γένεσις ἐκ μὴ ὄντος τινός, οἶον ἐκ
 5 μὴ λευκοῦ ἢ μὴ καλοῦ, ἢ δὲ ἀπλῇ ἐξ ἀπλῶς μὴ
 ὄντος.

Τὸ δ' ἀπλῶς ἦτοι τὸ πρῶτον σημαίνει καθ'
 ἐκάστην κατηγορίαν τοῦ ὄντος, ἢ τὸ καθόλου καὶ
 τὸ πάντα περιέχον. εἰ μὲν οὖν τὸ πρῶτον, οὐσίας
 ἔσται γένεσις ἐκ μὴ οὐσίας. ᾧ δὲ μὴ ὑπάρχει οὐσία
 μηδὲ τόδε, δῆλον ὡς οὐδὲ τῶν ἄλλων οὐδεμία κατη-
 10 γοριῶν, οἶον οὔτε ποιὸν οὔτε ποσὸν οὔτε τὸ ποῦ·
 χωριστὰ γὰρ ἂν εἴη τὰ πάθη τῶν οὐσιῶν. εἰ δὲ
 τὸ μὴ ὄν ὅλως, ἀπόφασις ἔσται καθόλου πάντων,
 ὥστε ἐκ μηδενὸς ἀνάγκη γίνεσθαι τὸ γινόμενον.

Περὶ μὲν οὖν τούτων ἐν ἄλλοις τε διηπόρηται καὶ
 15 διώρισται τοῖς λόγοις ἐπὶ πλείον· συντόμως δὲ καὶ
 νῦν λεκτέον, ὅτι τρόπον μὲν τινα ἐκ μὴ ὄντος ἀπλῶς
 γίνεται, τρόπον δὲ ἄλλον ἐξ ὄντος αἰεί· τὸ γὰρ
 δυνάμει ὄν ἐντελεχεία δὲ μὴ ὄν ἀνάγκη προϋπάρχειν
 λεγόμενον ἀμφοτέρως. ὁ δὲ καὶ τούτων διωρι-
 σμένων ἔχει θαυμαστήν ἀπορίαν, πάλιν ἐπαναπο-
 20 διστέον, πῶς ἔστιν ἀπλῇ γένεσις, εἴτ' ἐκ δυνάμει
 ὄντος οὔσα εἴτε καί πως ἄλλως. ἀπορήσειε γὰρ ἂν
 τις ἂρ' ἔστιν οὐσίας γένεσις καὶ τοῦ τοῦδε, ἀλλὰ
 μὴ τοῦ τοιοῦδε καὶ τοσοῦδε καὶ ποῦ (τὸν αὐτὸν δὲ

^a *Phys.* i. 6-9.

^b i.e. as "being" and as "not-being."

COMING-TO-BE AND PASSING-AWAY, I. 3

some kind of coming-to-be proceeds from some kind of not-being, for example, from "not-white" and "not-beautiful," but unqualified coming-to-be proceeds from unqualified not-being.

Now "unqualified" signifies either (a) that which is primary in each category, or (b) that which is universal and universally comprehensive. If, then, it signifies that which is primary, there will be a coming-to-be of substance out of not-substance; but that which has not a substance or a "this" obviously cannot have any predicate from the other categories, either, for example, quality, quantity or position, for then the properties would exist apart from the substances. If, on the other hand, "unqualified not-being" signifies that which does not exist at all, this will be a general negation of all being, and, therefore, what comes-to-be must come-to-be out of nothing.

This problem has been discussed and settled at greater length elsewhere^a; but a short restatement of it is called for here: In one way things come-to-be out of that which has no unqualified being, in another way they always come-to-be out of what is; for there must be a pre-existence of that which potentially is, but actually is not, in being, and this is described in both ways.^b This having been established, a question involving extraordinary difficulty must be re-examined, namely, how can there be "unqualified coming-to-be," whether it comes from what exists potentially or in some other way? For one might raise the question whether there is a coming-to-be of substance (that is, of the "this") at all, and not rather of a "such" or a "so-great" or a "somewhere"; and the same question might be asked

The meaning of *unqualified*.

Are coming-to-be and passing-away concerned with substance or with quality?

317 b

τρόπον καὶ περὶ φθορᾶς). εἰ γάρ τι γίνεται, δῆλον
ὥς ἔσται δυνάμει τις οὐσία, ἐντελεχεία δ' οὐ, ἐξ
25 ἧς ἡ γένεσις ἔσται καὶ εἰς ἣν ἀνάγκη μεταβάλλειν
τὸ φθειρόμενον. πότερον οὖν ὑπάρξει τι τούτῳ
τῶν ἄλλων ἐντελεχεία; λέγω δ' οἷον ἂρ' ἔσται
ποσὸν ἢ ποιὸν ἢ ποῦ τὸ δυνάμει μόνον τόδε καὶ ὄν,
ἀπλῶς δὲ μὴ τόδε μὴδ' ὄν; εἰ γὰρ μὴδὲν ἀλλὰ
πάντα δυνάμει, χωριστόν τε συμβαίνει τὸ μὴ οὕτως
30 ὄν, καὶ ἔτι, ὃ μάλιστα φοβούμενοι διετέλεσαν οἱ
πρῶτοι φιλοσοφήσαντες, τὸ ἐκ μηδενὸς γίνεσθαι
προϋπάρχοντος· εἰ δὲ τὸ μὲν εἶναι τόδε τι ἢ οὐσίαν
οὐχ ὑπάρξει, τῶν δ' ἄλλων τι τῶν εἰρημένων, ἔσται,
καθάπερ εἵπομεν, χωριστὰ τὰ πάθη τῶν οὐσιῶν.
περὶ τε τούτων οὖν ὅσον ἐνδέχεται πραγματευτέον,
35 καὶ τίς αἰτία τοῦ γένεσιν αἰεὶ εἶναι, καὶ τὴν ἀπλὴν
καὶ τὴν κατὰ μέρος.

318 a Οὕσης δ' αἰτίας μιᾶς μὲν ὅθεν τὴν ἀρχὴν εἶναί
φαμεν τῆς κινήσεως, μιᾶς δὲ τῆς ὕλης, τὴν τοιαύτην
αἰτίαν λεκτέον. περὶ μὲν γὰρ ἐκείνης εἴρηται πρό-
τερον ἐν τοῖς περὶ κινήσεως λόγοις, ὅτι ἐστὶ τὸ
5 μὲν ἀκίνητον τὸν ἅπαντα χρόνον, τὸ δὲ κινούμενον
αἰεὶ. τούτων δὲ περὶ μὲν τῆς ἀκινήτου ἀρχῆς τῆς
ἐτέρας καὶ προτέρας διελεῖν ἐστὶ φιλοσοφίας ἔργον·

^a In lines 10, 11 above.

^b *i.e.* qualified, that is, changing in respect of quality, quantity or position.

^c *Phys.* 258 b 10 ff.

about passing-away also. For, if something comes-to-be, it is clear that there will be substance, not actually but potentially, from which the coming-to-be will proceed and into which that which is passing-away must change. Will any other attribute then belong actually to this supposed substance? For example, I mean, will that which is only potentially a "this" (and only potentially exists), and which is not a "this" and does not exist *without qualification*, possess size or quality or position? For, (1) if it actually possessed none of these determinations but possesses them all potentially, the result is (a) that a being which is not a determined being can possess a separate existence, and (b) that coming-to-be arises out of nothing pre-existent—a view which inspired great and continuous alarm in the minds of the early philosophers. On the other hand, (2) if, although it is not to be a "this" or a substance, it is to possess some of the other attributes which we have mentioned, then, as we said,^a the qualities will be separable from the substance. We must, therefore, deal with these matters to the best of our ability, and also with the causes of continuous coming-to-be, both the unqualified and the partial.^b

Now there are two meanings of "cause," one being that which, as we say, results in the beginning of motion, and the other the material cause. It is the latter kind with which we have to deal here; for with cause in the former sense we have dealt in our discussion of Motion,^c when we said that there is something which remains immovable through all time and something which is always in motion. To come to a decision about the first of these, the immovable original source, is the task of the other and prior

περὶ δὲ τοῦ διὰ τὸ συνεχῶς κινεῖσθαι τὰλλα κινου-
 τος ὕστερον ἀποδοτέον, τί τοιοῦτον τῶν καθ'
 ἕκαστα λεγομένων αἰτιόν ἐστιν. νῦν δὲ τὴν ὥς ἐν
 10 ὕλης εἶδει τιθεμένην αἰτίαν εἵπωμεν, δι' ἣν αἰεὶ
 φθορὰ καὶ γένεσις οὐχ ὑπολείπει τὴν φύσιν· ἅμα
 γὰρ ἂν ἴσως τοῦτο γένοιτο δῆλον, καὶ περὶ τοῦ
 νῦν ἀπορηθέντος, πῶς ποτὲ δεῖ λέγειν καὶ περὶ τῆς
 ἀπλῆς φθορᾶς καὶ γενέσεως.

Ἔχει δ' ἀπορίαν ἱκανὴν καὶ τί τὸ αἴτιον τοῦ
 συνείρειν τὴν γένεσιν, εἴπερ τὸ φθειρόμενον εἰς τὸ
 15 μὴ ὄν ἀπέρχεται, τὸ δὲ μὴ ὄν μηδέν ἐστιν· οὔτε
 γὰρ τί οὔτε ποιὸν οὔτε ποσὸν οὔτε ποῦ τὸ μὴ ὄν.
 εἴπερ οὖν αἰεὶ τι τῶν ὄντων ἀπέρχεται, διὰ τί ποτ'
 οὐκ ἀνήλωται πάλαι καὶ φρουδὸν τὸ πᾶν, εἴ γε
 πεπερασμένον ἦν ἐξ οὗ γίνεται τῶν γινομένων
 ἕκαστον; οὐ γὰρ δὴ διὰ τὸ ἄπειρον εἶναι ἐξ οὗ
 20 γίνεται, οὐχ ὑπολείπει· τοῦτο γὰρ ἀδύνατον. κατ'
 ἐνέργειαν μὲν γὰρ οὐδέν ἐστιν ἄπειρον, δυνάμει
 δ' ἐπὶ τὴν διαίρεσιν, ὥστ' ἔδει ταύτην εἶναι μόνην
 τὴν μὴ ὑπολείπουσαν τῷ γίνεσθαι τι αἰεὶ ἔλαττον.
 νῦν δὲ τοῦτο οὐχ ὁρῶμεν.

Ἄρ' οὖν διὰ τὸ τὴν τοῦδε φθορὰν ἄλλου εἶναι
 25 γένεσιν καὶ τὴν τοῦδε γένεσιν ἄλλου εἶναι φθορὰν

^a Usually called πρώτη φιλοσοφία.

^b See 336 a 13 ff.

^c Or "specific" causes, as opposed to causes in the universal sense : cf. *Phys.* 195 a 27 ff.

COMING-TO-BE AND PASSING-AWAY, I. 3

branch of philosophy,^a while, regarding that which moves all other things by its own continuous motion, we shall have to explain later^b which of the individual^c causes is of this kind. For the moment let us deal with the cause which is placed in the class of matter, owing to which passing-away and coming-to-be never fail to occur in nature ; for perhaps this may be cleared up and it may become evident at the same time what we ought to say about the problem which arose just now, namely, about unqualified passing-away and coming-to-be.

What is the cause of the continuous process of coming-to-be is a perplexing enough problem, if it is really true that what passes-away vanishes into " what is not " and " what is not " is nothing ; for " what is not " is not anything and possesses neither quality nor quantity nor position. If, therefore, some one of the " things-which-are " is constantly vanishing, how is it that the whole of being has not long ago been used up and has not disappeared, provided, of course, that the source of each of the things which come-to-be was limited ? For, I suppose, the fact that coming-to-be never fails is not because the source from which it comes is infinite ; for this is impossible, since nothing is actually infinite but only potentially so for the purpose of division, so that there would have to be only one kind of coming-to-be, namely, one which never fails, because something which comes-to-be is successively smaller and smaller. But, as a matter of fact, we do not see this happening.

Is it, then, because the passing-away of one thing is the coming-to-be of another thing, and the coming-to-be of one thing the passing-away of another thing,

What is the cause of coming-to-be and passing-away ?

Why is the process of change unceasing ?

318 a

ἄπαυστον ἀναγκαῖον εἶναι τὴν μεταβολήν; περὶ
 μὲν οὖν τοῦ γενέσιν εἶναι καὶ φθορὰν ὁμοίως περὶ
 ἕκαστον τῶν ὄντων, ταύτην οἰητέον εἶναι πᾶσιν
 ἱκανὴν αἰτίαν. διὰ τί δέ ποτε τὰ μὲν ἀπλῶς γί-
 νεσθαι λέγεται καὶ φθείρεσθαι τὰ δ' οὐχ ἀπλῶς,
 30 πάλιν σκεπτέον, εἴπερ τὸ αὐτὸ ἐστὶ γενέσεις μὲν
 τουδὶ φθορὰ δὲ τουδὶ, καὶ φθορὰ μὲν τουδὶ γενέσεις
 δὲ τουδὶ. ζητεῖ γάρ τινα τοῦτο λόγον. λέγομεν
 γὰρ ὅτι φθείρεται νῦν ἀπλῶς, καὶ οὐ μόνον τοδὶ.
 καὶ αὕτη μὲν γενέσεις ἀπλῶς, αὕτη δὲ φθορά. τοδὶ
 δὲ γίνεται μὲν τι, γίνεται δ' ἀπλῶς οὔ. φαμέν γὰρ
 35 τὸν μανθάνοντα γίνεσθαι μὲν ἐπιστήμονα, γίνεσθαι
 δ' ἀπλῶς οὔ.

318 b

Καθάπερ οὖν πολλάκις διορίζομεν λέγοντες ὅτι τὰ
 μὲν τόδε τι σημαίνει τὰ δ' οὔ, διὰ τοῦτο συμβαίνει
 τὸ ζητούμενον· διαφέρει γὰρ εἰς ᾧ μεταβάλλει τὸ
 μεταβάλλον· οἷον ἴσως ἢ μὲν εἰς πῦρ ὁδὸς γενέσεις
 5 μὲν ἀπλῆ, φθορὰ δὲ τινός ἐστιν, οἷον γῆς, ἢ δὲ γῆς
 γενέσεις τις γενέσεις, γενέσεις δ' οὐχ ἀπλῶς, φθορὰ
 δ' ἀπλῶς, οἷον πυρός, ὥσπερ Παρμενίδης λέγει δύο
 τὸ ὄν καὶ τὸ μὴ ὄν εἶναι φάσκων, πῦρ καὶ γῆν. τὸ
 δὴ ταῦτα ἢ τοιαῦθ' ἕτερα ὑποτίθεσθαι διαφέρει
 οὐδέν· τὸν γὰρ τρόπον ζητοῦμεν, ἀλλ' οὐ τὸ ὑπο-

^a Fr. 8 lines 53 ff. (Diels), but Parmenides mentions this theory as being wrong.

COMING-TO-BE AND PASSING-AWAY, I. 3

that the process of change is necessarily unceasing ? As regards the occurrence of coming-to-be and passing-away in everything which exists alike, the above must be regarded by all as an adequate cause ; but why some things are said to come-to-be and to pass-away *without qualification* and others *with qualification*, must be examined once more, if it is true that the same process is a coming-to-be of " this," but a passing-away of " that," and a passing-away of " this " but a coming-to-be of " that " ; for the question calls for discussion. For we say " It is now passing-away " without qualification, and not merely " *This* is passing-away " ; and we call *this* a " coming-to-be," and *that* a " passing-away," without qualification. But *this* " comes-to-be-something," but does not do so without qualification ; for we say that the student " comes-to-be learned," not " comes-to-be " without qualification.

The distinction between " qualified " and " unqualified."

Now we often make a distinction, saying that some things signify a " this," and others do not ; and it is because of this that the point which we are examining arises, for it makes a difference *into what* that which is changing changes. For example, perhaps the passage into Fire is " coming-to-be " without qualification but " passing-away-of-something " (for instance, of Earth), while the coming-to-be of Earth is qualified (not unqualified) coming-to-be, but unqualified passing-away (for example, of Fire). This agrees with Parmenides' theory,^a for he says that the things into which change takes place are two and asserts that these two things, what is and what is not, are Fire and Earth. Whether we postulate these or other things of a like kind makes no difference ; for we are seeking not what underlies these changes, but

318 b

10 κείμενον. ἡ μὲν οὖν εἰς τὸ μὴ ὄν ἀπλῶς ὁδὸς
 φθορὰ ἀπλῇ, ἡ δ' εἰς τὸ ἀπλῶς ὄν γένεσις ἀπλῇ.
 οἷς οὖν διώρισται εἴτε πυρὶ καὶ γῇ εἴτε ἄλλοις τισί,
 τούτων ἔσται τὸ μὲν ὄν τὸ δὲ μὴ ὄν. ἓνα μὲν οὖν
 τρόπον τούτῳ διοίσει τὸ ἀπλῶς τι γίνεσθαι καὶ
 φθείρεσθαι τοῦ μὴ ἀπλῶς, ἄλλον δὲ τῇ ὕλῃ ὅποια
 15 τις ἂν ᾖ· ἥς μὲν γὰρ μᾶλλον αἱ διαφοραὶ τόδε τι
 σημαίνουσι, μᾶλλον οὐσία, ἥς δὲ στέρησιν, μὴ ὄν,
 οἷον τὸ μὲν θερμὸν κατηγορία τις καὶ εἶδος, ἡ δὲ
 ψυχρότης στέρησις· διαφέρουσι δὲ γῇ καὶ πῦρ καὶ
 ταύταις ταῖς διαφοραῖς.

Δοκεῖ δὲ μᾶλλον τοῖς πολλοῖς τῷ αἰσθητῷ καὶ
 20 μὴ αἰσθητῷ διαφέρειν· ὅταν μὲν γὰρ εἰς αἰσθητὴν
 μεταβάλλῃ ὕλην, γίνεσθαι φασιν, ὅταν δ' εἰς ἀφανῆ,
 φθείρεσθαι· τὸ γὰρ ὄν καὶ τὸ μὴ ὄν τῷ αἰσθάνεσθαι
 καὶ τῷ μὴ αἰσθάνεσθαι διορίζουσιν, ὥσπερ τὸ μὲν
 ἐπιστητὸν ὄν, τὸ δ' ἄγνωστον μὴ ὄν· ἡ γὰρ αἴσθησις
 ἐπιστήμης ἔχει δύναμιν. καθάπερ οὖν αὐτοὶ τῷ
 25 αἰσθάνεσθαι ἢ τῷ δύνασθαι καὶ ζῆν καὶ εἶναι
 νομίζουσιν, οὕτω καὶ τὰ πράγματα, τρόπον τινὰ

the manner in which they take place. The passage, then, into that which "is not" without qualification is unqualified passing-away, while the passage into that which "is" without qualification is unqualified coming-to-be. Hence, whatever it is by which the things which change are distinguished from one another—whether it be Fire and Earth or some other pair—one will be "a being," the other "a not-being." One way, then, in which unqualified will differ from qualified coming-to-be and passing-away is obtained by this method. Another way of distinguishing them is by the special nature of the material of that which changes; for the more the differences of material signify "a this," the more is it a real being, whereas the more they signify a privation, the more unreal it is. For example, "hot" is a positive predication and a "form," while "cold" is a privation, and Earth and Fire are distinguished from one another by these differences.

In the opinion of most people the difference between qualified and unqualified depends rather on perceptibility and imperceptibility; for when there is a change to perceptible material, they say that coming-to-be takes place, but, when they change to invisible material, they say that passing-away occurs: for they distinguish between "that which is" and "that which is not" by their perception and non-perception, just as what is knowable *is* and what is unknowable *is not* (for to them perception has the force of knowledge). As, therefore, they themselves think that they live and have their being in virtue of perceiving or having the power to perceive, so, too, they consider that things exist because they perceive them—and, in a way, they are on the right road to

A note on why most people identify the real with the perceptible and the unreal with the imperceptible.

318 b

διώκοντες τ' ἀληθές, αὐτὸ δὲ λέγοντες οὐκ ἀληθές.
 συμβαίνει δὴ κατὰ δόξαν καὶ κατ' ἀλήθειαν ἄλλως
 τὸ γίνεσθαι τε ἀπλῶς καὶ τὸ φθείρεσθαι· πνεῦμα
 γὰρ καὶ ἀήρ κατὰ μὲν τὴν αἴσθησιν ἡττόν ἐστιν (διὸ
 30 καὶ τὰ φθειρόμενα ἀπλῶς τῇ εἰς ταῦτα μεταβολῇ
 φθείρεσθαι λέγουσιν, γίνεσθαι δ' ὅταν εἰς ἀπτόν καὶ
 εἰς γῆν μεταβάλλῃ), κατὰ δ' ἀλήθειαν μᾶλλον τόδε
 τι καὶ εἶδος ταῦτα τῆς γῆς.

Τοῦ μὲν οὖν εἶναι τὴν μὲν ἀπλὴν γένεσιν φθορὰν
 οὐσάν τινος, τὴν δὲ φθορὰν τὴν ἀπλὴν γένεσιν οὐσάν
 35 τινος, εἴρηται τὸ αἷτιον (διὰ γὰρ τὸ τὴν ὕλην δια-
 319 a φέρειν ἢ τῷ οὐσίαν εἶναι ἢ τῷ μή, ἢ τῷ τὴν μὲν
 μᾶλλον τὴν δὲ μή, ἢ τῷ τὴν μὲν μᾶλλον αἰσθητὴν
 εἶναι τὴν ὕλην ἐξ ἧς καὶ εἰς ἣν, τὴν δὲ ἡττον εἶναι).
 τοῦ δὲ τὰ μὲν ἀπλῶς γίνεσθαι λέγεσθαι, τὰ δέ τι
 μόνον, μὴ τῇ ἐξ ἀλλήλων γενέσει, καθ' ὃν εἵπομεν
 5 νῦν τρόπον (νῦν μὲν γὰρ τοσοῦτον διώρισται, τί δὴ
 ποτε πάσης γενέσεως οὔσης φθορᾶς ἄλλον, καὶ
 πάσης φθορᾶς οὔσης ἐτέρου τινὸς γενέσεως, οὐχ
 ὁμοίως ἀποδίδομεν τὸ γίνεσθαι καὶ τὸ φθείρεσθαι
 τοῖς εἰς ἄλληλα μεταβάλλουσιν. τὸ δ' ὕστερον εἰρη-
 μένον οὐ τοῦτο διαπορεῖ ἀλλὰ τί ποτε τὸ μακθάνον
 10 μὲν οὐ λέγεται ἀπλῶς γίνεσθαι ἀλλὰ γίνεσθαι ἐπι-
 στῆμον, τὸ δὲ φυόμενον γίνεσθαι), ταῦτα δὲ δι-
 ώρισται ταῖς κατηγορίαις· τὰ μὲν γὰρ τόδε τι

^a τοῦ μὲν (318 b 33) is answered by τοῦ δὲ (319 a 3), and the construction is broken by the parenthesis.

^b i.e. in 318 a 33 ff.

^c i.e. to the question raised in lines 3-5 above.

COMING-TO-BE AND PASSING-AWAY, I. 3

the truth, though what they actually say is not true. Indeed, the popular opinion about the way in which unqualified coming-to-be and passing-away occur, differs from the truth ; for Wind and Air have less reality according to our perception of them (hence, too, things which pass-away are said to do so in an unqualified sense by changing into Wind and Air, and to come-to-be when they change into what is tangible, namely, into Earth), whereas in truth they are more a definite something and a " form " than Earth.

We have now stated the reason why ^a there is unqualified coming-to-be, which is the passing-away of something, and unqualified passing-away, which is the coming-to-be of something (for it depends on the difference of the material, from which and into which the change takes place, and on its being substance or not, or on its having more or less of the nature of substance, or on its being more or less perceptible) ; but why are some things said to come-to-be without qualification, while others come-to-be some particular thing only and not by coming-to-be reciprocally out of one another in the manner which we described just now ? (For up to the present we have only determined this much, namely, why, although all coming-to-be is a passing-away of something else and all passing-away is a coming-to-be of some other thing, we do not attribute coming-to-be and passing-away uniformly to things which change into one another ; but the problem afterwards raised.^b does not discuss this difficulty, but why that which learns is said to come-to-be learned and not to come-to-be without qualification, yet that which grows is said to come-to-be). The answer ^c is that this is determined by the differences of the categories ; for

Summary of the argument. Coming-to-be and passing-away are two sides of a single transformation of substance into substance.

319 a

σημαίνει, τὰ δὲ τοιόνδε, τὰ δὲ ποσόν· ὅσα οὖν μὴ οὐσίαν σημαίνει, οὐ λέγεται ἀπλῶς, ἀλλὰ τὶ γίνεσθαι. οὐ μὴν ἀλλ' ὁμοίως ἐν πᾶσι γένεσις μὲν
 15 κατὰ τὰ ἐν τῇ ἑτέρᾳ συστοιχίᾳ λέγεται, οἷον ἐν μὲν οὐσία ἐὰν πῦρ ἀλλ' οὐκ ἐὰν γῆ, ἐν δὲ τῷ ποιῶ ἐὰν ἐπιστῆμον ἀλλ' οὐχ ὅταν ἀνεπιστῆμον.

Περὶ μὲν οὖν τοῦ τὰ μὲν ἀπλῶς γίνεσθαι τὰ δὲ μή, καὶ ὅλως καὶ ἐν ταῖς οὐσίαις αὐταῖς, εἴρηται, καὶ διότι τοῦ γένεσιν εἶναι συνεχῶς αἰτία ὡς ὕλη
 20 τὸ ὑποκείμενον, ὅτι μεταβλητικὸν εἰς τάναντία, καὶ ἔστιν ἡ θατέρου γένεσις ἀεὶ ἐπὶ τῶν οὐσιῶν ἄλλου φθορὰ καὶ ἡ ἄλλου φθορὰ ἄλλου γένεσις. ἀλλὰ μὴν οὐδ' ἀπορῆσαι δεῖ διὰ τί γίνεται ἀεὶ ἀπολλυμένων· ὥσπερ γὰρ καὶ τὸ φθείρεσθαι ἀπλῶς φασίν, ὅταν εἰς ἀναισθητον ἔλθῃ καὶ τὸ μὴ ὄν,
 25 ὁμοίως καὶ γίνεσθαι ἐκ μὴ ὄντος φασίν, ὅταν ἐξ ἀναισθήτου. εἴτ' οὖν ὄντος τινὸς τοῦ ὑποκειμένου εἴτε μή, γίνεται ἐκ μὴ ὄντος. ὥστε ὁμοίως καὶ γίνεται ἐκ μὴ ὄντος καὶ φθίρεται εἰς τὸ μὴ ὄν. εἰκότως οὖν οὐχ ὑπολείπει· ἡ γὰρ γένεσις φθορὰ τοῦ μὴ ὄντος, ἡ δὲ φθορὰ γένεσις τοῦ μὴ ὄντος.
 30 Ἀλλὰ τοῦτο τὸ μὴ ὄν ἀπλῶς ἀπορήσειεν ἂν τις

^a i.e. the two parallel columns containing co-ordinate pairs; see W. D. Ross on *Met.* 1054 b 35.

COMING-TO-BE AND PASSING-AWAY, I. 3

some things signify a "this," others a "such-and-such," others a "so-much." Those things, therefore, which do not signify substance are not said to come-to-be without qualification, but to come-to-be *something*. However, coming-to-be is said to take place in all things alike when a thing comes-to-be something in *one* of the two columns^a: in substance if it comes-to-be Fire, but not if it comes-to-be Earth; in quality, if it comes-to-be learned, but not if it comes-to-be ignorant.

It has already been stated how some things come-to-be without qualification and others do not, both generally and in the substances themselves, and that the substratum is the material cause why coming-to-be is a continuous process because it is subject to change into the contraries, and, in the case of substances, the coming-to-be of one thing is always a passing-away of another, and the passing-away of one thing another's coming-to-be. It is, however, not necessary even to raise the question why coming-to-be goes on when things are being destroyed; for, just as people use the term passing-away without qualification when a thing has passed into the imperceptible and into apparent non-existence, so likewise also they talk of coming-to-be from non-existence, when a thing appears out of imperceptibility. Whether, therefore, the substratum is something or is not, what comes-to-be does so from not-being; and so it comes-to-be from not-being and passes-away into not-being in the same manner. Therefore it is probable that coming-to-be never fails; for it is a passing-away of that which is not, and passing-away is a coming-to-be of that which is not.

But about that which "is not," unless you qualify

319 a

πότερον τὸ ἕτερον τῶν ἐναντίων ἐστίν, οἷον γῆ καὶ τὸ βαρὺ μὴ ὄν, πῦρ δὲ καὶ τὸ κοῦφον¹ ὄν, ἢ οὐ, ἀλλ' ἐστὶ καὶ γῆ τὸ ὄν, τὸ δὲ μὴ ὄν ὕλη ἢ τῆς γῆς, καὶ πυρὸς ὡσαύτως. καὶ ἄρά γε ἑτέρα ἑκα-

319 b

τέρου ἢ ὕλη, ἢ οὐκ ἂν γίνοιτο ἐξ ἀλλήλων οὐδ' ἐξ ἐναντίων; τούτοις γὰρ ὑπάρχει τὰναντία, πυρί, γῆ, ὕδατι, ἀέρι. ἢ ἐστὶ μὲν ὡς ἡ αὐτή, ἐστὶ δ' ὡς ἡ ἑτέρα· ὁ μὲν γάρ ποτε ὄν ὑπόκειται τὸ αὐτό, τὸ δ' εἶναι οὐ τὸ αὐτό. περὶ μὲν οὖν τούτων ἐπὶ 5 τοσοῦτον εἰρήσθω.

4. Περὶ δὲ γενέσεως καὶ ἀλλοιώσεως λέγωμεν τί διαφέρουσιν· φαμέν γὰρ ἑτέρας εἶναι ταύτας τὰς μεταβολὰς ἀλλήλων. ἐπειδὴ οὖν ἐστὶ τι τὸ ὑποκει-
μενον καὶ ἕτερον τὸ πάθος ὃ κατὰ τοῦ ὑποκειμένου
10 λέγεσθαι πέφυκεν, καὶ ἐστὶ μεταβολὴ ἑκατέρου τούτων, ἀλλοιώσις μὲν ἐστίν, ὅταν ὑπομένοντος τοῦ ὑποκειμένου, αἰσθητοῦ ὄντος, μεταβάλλῃ ἐν τοῖς αὐτοῦ πάθεσιν, ἢ ἐναντίοις οὖσιν ἢ μεταξύ, οἷον τὸ σῶμα ὑγιαίνει καὶ πάλιν κάμνει ὑπομένον γε ταυτό, καὶ ὁ χαλκὸς στρογγύλος, ὅτε δὲ γωνιοειδὴς
15 ὁ αὐτός γε ὢν. ὅταν δ' ὅλον μεταβάλλῃ μὴ ὑπο-
μένοντος αἰσθητοῦ τινὸς ὡς ὑποκειμένου τοῦ αὐτοῦ, ἀλλ' οἷον ἐκ τῆς γονῆς αἷμα πάσης ἢ ἐξ ὕδατος ἀῆρ ἢ ἐξ ἀέρος παντὸς ὕδωρ, γένεσις ἤδη τὸ τοιοῦ-
τον, τοῦ δὲ φθορά, μάλιστα δέ, ἂν ἢ μεταβολὴ

¹ post κοῦφον add. τὸ E.L.

it, one might well be puzzled. Is it one of the two contraries? For example, is Earth, and that which is heavy, "not-being," but Fire, and that which is light, "being"? Or is this not so, but is Earth also "what is," while "what is not" is matter—the matter of Earth and of Fire alike? And is the matter of each different, or else they would not come-to-be out of one another, that is, contraries out of contraries? For the contraries exist in these things, namely, in Fire, Earth, Water and Air. Or is the matter the same in one sense, but different in another? For their substratum at any particular moment is the same, but their being is not the same. So much, then, on these subjects.

4. Let us now deal with coming-to-be and "alteration" and discuss the difference between them; for we say these forms of change differ from one another. Since, then, the substratum is one thing and the property which is of such a nature as to be predicated of the substratum is another thing, and since change takes place in each of these, "alteration" occurs when the substratum, which is perceptible, persists, but there is change in its properties, which are either directly or intermediately contrary to one another: for example, the body is healthy and then again sick, though it persists in being the same body, and the bronze is spherical and then again angular, remaining the same bronze. But when the thing as a whole changes, nothing perceptible persisting as identical substratum (for example, when the seed as a whole is converted into blood, or water into air, or air as a whole into water), such a process is a coming-to-be—and a passing-away of the other substance—particularly if the change proceeds from something imper-

Alteration is change of quality; coming-to-be and passing-away are changes of substance.

319 b

γίνεται ἐξ ἀναισθήτου εἰς αἰσθητὸν ἢ ἀφ᾽ ἧς ἢ πάσαις
 20 ταῖς αἰσθήσεσιν, οἷον ὅταν ὕδωρ γένηται ἢ φθαρῇ
 εἰς ἀέρα· ὁ γὰρ ἀὴρ ἐπικεικῶς ἀναίσθητον. ἐν δὲ
 τούτοις ἂν τι ὑπομένῃ πάθος τὸ αὐτὸ ἐναντιώσεως
 ἐν τῷ γενομένῳ καὶ τῷ φθαρέντι (οἷον ὅταν ἐξ
 ἀέρος ὕδωρ, εἰ ἄμφω διαφανῇ ἢ ψυχρά), οὐ δεῖ
 τούτου θάτερον πάθος εἶναι εἰς ὃ μεταβάλλει. εἰ
 25 δὲ μή, ἔσται ἀλλοιώσις. οἷον ὁ μουσικὸς ἄνθρωπος
 ἐφθάρῃ, ἄνθρωπος δ' ἄμουσος ἐγένετο, ὁ δ' ἄνθρω-
 πος ὑπομένει τὸ αὐτό. εἰ μὲν οὖν τούτου μὴ πάθος
 ἦν καθ' αὐτὸ ἢ μουσικὴ καὶ ἢ ἀμουσία, τοῦ μὲν
 γένεσις ἦν ἂν, τοῦ δὲ φθορά· διὸ ἀνθρώπου μὲν
 ταῦτα πάθη, ἀνθρώπου δὲ μουσικοῦ καὶ ἀνθρώπου
 30 ἀμούσου γένεσις καὶ φθορά· νῦν δὲ πάθος τοῦτο
 τοῦ ὑπομένοντος. διὸ ἀλλοιώσις τὰ τοιαῦτα.

Ὅταν μὲν οὖν κατὰ τὸ ποσὸν ἧ ἢ μεταβολὴ τῆς
 ἐναντιώσεως, αὖξή καὶ φθίσις, ὅταν δὲ κατὰ τόπον,
 φορά, ὅταν δὲ κατὰ πάθος καὶ τὸ ποιόν, ἀλλοιώσις,
 320 a ὅταν δὲ μηδὲν ὑπομένῃ οὐ θάτερον πάθος ἢ συμ-
 βεβηκὸς ὅλως, γένεσις, τὸ δὲ φθορά. ἔστι δὲ ὕλη
 μάλιστα μὲν καὶ κυρίως τὸ ὑποκείμενον γενέσεως καὶ
 φθορᾶς δεκτικόν, τρόπον δέ τινα καὶ τὸ ταῖς ἄλλαις
 5 μεταβολαῖς, ὅτι πάντα δεκτικὰ τὰ ὑποκείμενα ἐναν-
 202

ceptible to something perceptible (either to touch or to all the senses), as when water comes-to-be out of, or passes-away into, air; for air is pretty well imperceptible. But if, in these circumstances, any property belonging to a pair of contraries persists in being the same in the thing which has come-to-be as it was in the thing which has passed-away—if, for instance, when water comes-to-be out of air, both are transparent or cold—that into which it changes is not necessarily another property of this thing; otherwise the change will be “alteration.” For example, the musical man passed-away and an unmusical man came-to-be, but the man persists as identically the same. Now if musicality (and unmusicality) were not in itself a property of man, there would be a coming-to-be of the one and passing-away of the other; therefore, these are qualities of a man, but the coming-to-be and the passing-away of a musical man and of an unmusical man; but, in fact, musicality (and unmusicality) are a quality of the persistent identity. Consequently such changes are “alteration.”

When, therefore, the change from one contrary to another is quantitative, it is “growth and diminution”; when it is a change of place, it is “motion”; when it is a change of property (or quality), it is “alteration”; but when nothing persists of which the resulting state is a property or an accident of any kind, it is a case of coming-to-be, and the contrary change is passing-away. Matter, in the chief and strictest sense of the word, is the substratum which admits of coming-to-be and passing-away; but the substratum of the other kind of change is also in a sense matter, because all the substrata admit of

320 a

τιώσεών τινων. περὶ μὲν οὖν γενέσεως,¹ εἴτε ἔστιν
εἴτε μή, καὶ πῶς ἔστι, καὶ περὶ ἀλλοιώσεως δι-
ωρίσθω τοῦτον τὸν τρόπον.

5. Περὶ δὲ αὐξήσεως λοιπὸν εἰπεῖν, τί τε δια-
φέρει γενέσεως καὶ ἀλλοιώσεως, καὶ πῶς αὐξάνεται
10 τῶν αὐξανομένων ἕκαστον καὶ φθίνει ὅτιοῦν τῶν
φθινόντων. σκεπτέον δὴ πρῶτον πότερον μόνως
ἐν τῷ περὶ ὃ ἔστιν αὐτῶν ἢ πρὸς ἄλληλα διαφορά,
οἷον ὅτι ἢ μὲν ἐκ τοῦδε εἰς τόδε μεταβολή, οἷον ἐκ
δυνάμει οὐσίας εἰς ἐντελεχείᾳ οὐσίαν, γενεσίς ἐστιν,
ἢ δὲ περὶ μέγεθος αὐξησις, ἢ δὲ περὶ πάθος ἀλ-
15 λοίωσις· ἀμφοτέρω δὲ ἐκ δυνάμει ὄντων εἰς ἐντε-
λέχειαν μεταβολή τῶν εἰρημένων ἐστίν, ἢ καὶ ὁ
τρόπος διαφέρει τῆς μεταβολῆς· φαίνεται γὰρ τὸ
μὲν ἀλλοιούμενον οὐκ ἐξ ἀνάγκης μεταβάλλον κατὰ
τόπον, οὐδὲ τὸ γινόμενον, τὸ δ' αὐξανόμενον καὶ
20 τὸ φθίνον, ἄλλον δὲ τρόπον τοῦ φερομένου. τὸ μὲν
γὰρ φερόμενον ὅλον ἀλλάττει τόπον, τὸ δ' αὐξα-
νόμενον ὥσπερ τὸ ἐλαυνόμενον· τούτου γὰρ μένον-
τος τὰ μόρια μεταβάλλει κατὰ τόπον, οὐχ ὥσπερ
τὰ τῆς σφαίρας· τὰ μὲν γὰρ ἐν τῷ ἴσῳ τόπῳ μετα-
βάλλει τοῦ ὅλου μένοντος, τὰ δὲ τοῦ αὐξανομέ-
25 νου ἀεὶ ἐπὶ πλείῳ τόπον, ἐπ' ἐλάττω δὲ τὰ τοῦ
φθίνοντος.

¹ καὶ φθορᾶς post γενέσεως add. Bekker.

COMING-TO-BE AND PASSING-AWAY, I. 4-5

certain kinds of contrariety. Let this, then, be our decision on the question about coming-to-be, whether it exists or not, and how it exists, and about "alteration."

5. It remains, therefore, for us to deal with "growth" and to discuss (a) how it differs from coming-to-be and from "alteration," and (b) how "growth" takes place in each thing that grows and how "diminution" occurs in each thing that diminishes. First we must consider whether the difference between them lies only in the sphere of each. For example, is it because the change from one thing to another (for instance, from potential to actual substance) is coming-to be, while the change in respect of magnitude is "growth"; and the change in respect of property is "alteration," and both the last two involve a change from what is-actually to what is-potentially? Or does the difference also lie in the manner of the change? For it is manifest that, whereas neither that which is altering nor that which is coming-to-be necessarily changes in respect of position, that which is growing and that which is diminishing *do* change in this respect but in a manner different from that in which that which is moving changes. For that which is moving changes its place as a whole, but that which is growing changes its position like a metal which is being beaten out; for, while it retains its place, its parts undergo local change, but not in the same manner as the parts of a revolving globe. For the latter change their places while the whole remains in an equal space, whereas the parts of that which is growing change so as to occupy an ever larger space, and the parts of that which is diminishing contract into an ever smaller space.

The nature of growth.

Growth is change in respect of size.

320 a

Ὅτι μὲν οὖν ἡ μεταβολὴ διαφέρει οὐ μόνον περὶ
ὃ ἀλλὰ καὶ ὡς τοῦ τε γινομένου καὶ ἀλλοιουμένου
καὶ αὐξανομένου, δῆλον. περὶ δὲ ὃ ἐστὶν ἡ μετα-
βολὴ ἢ τῆς αὐξήσεως καὶ ἢ τῆς φθίσεως (περὶ
μέγεθος δὲ δοκεῖ εἶναι τὸ αὐξάνεσθαι καὶ φθίνειν),

30 ποτέρως ὑποληπτέον, πότερον ἐκ δυνάμει μὲν
μεγέθους καὶ σώματος, ἐντελεχείᾳ δ' ἄσωμάτου
καὶ ἀμεγέθους γίνεσθαι σῶμα καὶ μέγεθος, καὶ
τούτου διχῶς ἐνδεχομένου λέγειν, ποτέρως ἢ
αὔξησις γίνεται; πότερον ἐκ κεχωρισμένης αὐτῆς
καθ' αὐτὴν τῆς ὕλης, ἢ ἐνυπαρχούσης ἐν ἄλλῳ

320 b σώματι; ἢ ἀδύνατον ἀμφοτέρως; χωριστὴ μὲν
γὰρ οὐσα ἢ οὐδένα καθέξει τόπον, [ἢ] οἶον στιγμὴ
τις, ἢ κενὸν ἔσται ἢ σῶμα οὐκ αἰσθητόν. τούτων
δὲ τὸ μὲν οὐκ ἐνδέχεται, τὸ δὲ ἀναγκαῖον ἐν τινι
εἶναι· ἀεὶ γάρ που ἔσται τὸ γινόμενον ἐξ αὐτοῦ,
5 ὥστε κακεῖνο, ἢ καθ' αὐτὸ ἢ κατὰ συμβεβηκός.
ἀλλὰ μὴν εἴ γ' ἐν τινι ὑπάρξει, εἰ μὲν κεχωρισμένον
οὕτως ὥστε μὴ ἐκείνου καθ' αὐτὸ ἢ κατὰ συμ-
βεβηκός τι εἶναι, συμβήσεται πολλὰ καὶ ἀδύνατα.
λέγω δ' οἶον εἰ γίνεται ἀὴρ ἐξ ὕδατος, οὐ τοῦ
ὕδατος ἔσται μεταβάλλοντος, ἀλλὰ διὰ τὸ ὥσπερ
10 ἐν ἀγγείῳ τῷ ὕδατι ἐνείναι τὴν ὕλην αὐτοῦ.
ἀπίρους γὰρ οὐδὲν κωλύει ὕλας εἶναι, ὥστε καὶ
γίνεσθαι ἐντελεχείᾳ. ἔτι δ' οὐδ' οὕτω φαίνεται

^a i.e. either as itself occupying a place, or contained in something else.

It is clear, then, that the changes both of that which comes-to-be and of that which "alters" and of that which "grows," differ not only in sphere but also in manner. But how are we to conceive the sphere of the change which is growth and diminution? Growth and diminution are generally regarded as taking place in the sphere of magnitude. Are we, then, to suppose that body and magnitude come-to-be out of what is potentially body and magnitude but is actually incorporeal and without magnitude? And since this can be meant in two different senses, in which of these senses does growth take place? Does it come from matter which exists separately by itself or matter previously existing in another body? Or is it impossible for growth to take place under either of these conditions? For, since the matter is separate, either it will take up no space, like a point, or else it will be void or, in other words, an imperceptible body. Of these alterations the first is impossible, and in the second the matter must be *in* something. For, in the first case, what comes-to-be from it will always be somewhere, so that the matter too must exist somewhere, either directly or indirectly^a; in the second case, supposing it is to be in something else, if it is so separated as not to belong to that something, either directly or indirectly, many impossibilities will arise. For example, if Air comes-to-be from Water, it will not be due to any change in the Water but owing to the presence of the matter of the Air in the Water, as in a vessel. For there is nothing to prevent there being an infinite number of matters contained in the Water, so that they might actually come-to-be; and, furthermore, the Air cannot be seen coming-to-be

γινόμενος ἀὴρ ἐξ ὕδατος, οἶον ἐξιὼν ὑπομένον-
τος.

Βέλτιον τοίνυν ποιεῖν πᾶσιν ἀχώριστον τὴν ὕλην
ὥς οὔσαν τὴν αὐτὴν καὶ μίαν τῷ ἀριθμῷ, τῷ λόγῳ
15 δὲ μὴ μίαν. ἀλλὰ μὴν οὐδὲ στιγμὰς θετέον οὐδὲ
γραμμὰς τὴν τοῦ σώματος ὕλην διὰ τὰς αὐτὰς
αἰτίας. ἐκείνο δὲ οὐ ταῦτα ἔσχατα, ἡ ὕλη, ἣν
οὐδέποτε ἄνευ πάθους οἶόν τε εἶναι οὐδ' ἄνευ μορφῆς.
γίνεται μὲν οὖν ἀπλῶς ἕτερον ἐξ ἐτέρου, ὥσπερ
καὶ ἐν ἄλλοις διώρισται, καὶ ὑπὸ τινος δὲ ἐντελεχείᾳ
20 ὄντος ἢ ὁμοιοειδοῦς ἢ ὁμογενοῦς, οἶον πῦρ ὑπὸ
πυρός ἢ ἄνθρωπος ὑπ' ἀνθρώπου, ἢ ὑπ' ἐντελεχείας.
σκληρὸν γὰρ οὐχ ὑπὸ σκληροῦ γίνεται. ἐπεὶ δ'
ἐστὶ καὶ οὐσίας ὕλη σωματικῆς, σώματος δ' ἤδη
τοιουδί (σῶμα γὰρ κοινὸν οὐδέν), ἡ αὐτὴ καὶ με-
γέθους καὶ πάθους ἐστί, τῷ μὲν λόγῳ χωριστή,
25 τόπῳ δ' οὐ χωριστή, εἰ μὴ καὶ τὰ πάθη χωριστά.

Φανερόν δὴ ἐκ τῶν διηπορημένων ὅτι οὐκ ἔστιν
ἡ αὕξησις μεταβολὴ ἐκ δυνάμει μεγέθους, ἐντελε-
χείᾳ δὲ μηδὲν ἔχοντος μέγεθος· χωριστὸν γὰρ ἂν
εἴη τὸ κενόν, τοῦτο δ' ὅτι ἀδύνατον, εἴρηται ἐν
ἐτέροις πρότερον. ἔτι δ' ἡ γε τοιαύτη μεταβολὴ
30 οὐκ αὐξήσεως ἴδιος ἀλλὰ γενέσεως· ἡ γὰρ αὕξησις
ἐστὶ τοῦ ἐνυπάρχοντος μεγέθους ἐπίδοσις, ἡ δὲ
φθίσις μείωσις (διὸ δὴ ἔχειν τι δεῖ μέγεθος τὸ

^a See *Met.* 1032 a 12 ff.

^b Or "form"; see *Met.* *l.c.* 25 ff.

^c In 320 a 27-b 12.

^d *Phys.* iv. 6-9.

in this manner out of Water, namely, issuing forth while the Water is left as it was.

It is better, therefore, to suppose that the matter in anything is inseparable, being the same and numerically one, though not one by definition. Further, for the same reasons also, we ought not to regard the matter of the body as points or lines ; matter is that which has points and lines as its *limits* and cannot possibly ever exist without qualities and without form. Now one thing comes-to-be, in the unqualified sense, out of another, as has been determined elsewhere ^a and by the agency of something which is actually either of the same species or of the same genus—for example, Fire comes-to-be through the agency of Fire and Man through that of Man—or through an actuality ^b (for that which is hard does not come-to-be through that which is hard). But since there is also a matter out of which corporeal substance comes-to-be, but already belonging to a body of such-and-such a kind (for there is no such being as body in general), this same matter is also the matter of magnitude and quality, being separable by definition but not in place, unless the properties are also separable.

Now it is clear from the difficulties which we have discussed, ^c that growth is not a change from a potential magnitude which actually has no magnitude ; for then, “ the void ” would be separable, and that is impossible, as has already been stated elsewhere. ^d Moreover, such a change is not peculiar to growth but characteristic of coming-to-be ; for growth is an increase, just as diminution is a reduction, of the already existing magnitude (hence that which grows must already possess a certain magni-

320 b

αὐξανόμενον), ὥστ' οὐκ ἐξ ἀμεγέθους ὕλης δεῖ εἶναι τὴν αὕξησιν εἰς ἐντελέχειαν μεγέθους· γένεσις γὰρ ἂν εἴη σώματος μᾶλλον, οὐκ αὕξησις. ληπτέον δὴ

321 a μᾶλλον οἷον ἀπτομένους τῆς ζητήσεως ἐξ ἀρχῆς, ποίου τινὸς ὄντος τοῦ αὐξάνεσθαι ἢ τοῦ φθίνειν τὰ αἷτια ζητοῦμεν.

Φαίνεται δὴ τοῦ αὐξανομένου ὅτιοῦν μέρος ἡϋ-
ξῆσθαι, ὁμοίως δὲ καὶ ἐν τῷ φθίνειν ἔλαττον γε-
γονέναι, ἔτι δὲ προσιόντος τινὸς αὐξάνεσθαι καὶ
5 ἀπιόντος φθίνειν. ἀναγκαῖον δὴ ἢ ἀσωμάτῳ αὐ-
ξάνεσθαι ἢ σώματι. εἰ μὲν οὖν ἀσωμάτῳ, ἔσται
χωριστὸν τὸ κενόν· ἀδύνατον δὲ μεγέθους ὕλην
εἶναι χωριστήν, ὥσπερ εἴρηται πρότερον· εἰ δὲ
σώματι, δύο ἐν τῷ αὐτῷ σώματα τόπῳ ἔσται, τό
τε αὐξόμενον καὶ τὸ αὔξον· ἔστι δὲ καὶ τοῦτο
10 ἀδύνατον. ἀλλὰ μὴν οὐδ' οὕτως ἐνδέχεται λέγειν
γίνεσθαι τὴν αὕξησιν καὶ τὴν φθίσιν, ὥσπερ ὅταν
ἐξ ὕδατος ἀήρ· τότε γὰρ μείζων ὁ ὄγκος γέγονεν·
οὐ γὰρ αὕξησις τοῦτο ἀλλὰ γένεσις μὲν τοῦ εἰς ὃ
μετέβαλεν ἔσται, φθορὰ δὲ τοῦ ἐναντίου· αὕξησις
δὲ οὐδετέρου, ἀλλ' ἢ οὐδενὸς ἢ εἴ τι κοινὸν ἀμφοῖν
15 ὑπάρχει, τῷ γινομένῳ καὶ τῷ φθαρέντι, οἷον εἰ
σῶμα. τὸ δ' ὕδωρ οὐκ ἡϋξῆται οὐδ' ὁ ἀήρ, ἀλλὰ
τὸ μὲν ἀπόλωλε τὸ δὲ γέγονεν· τὸ σῶμα δέ, εἴπερ,
ἡϋξῆται. ἀλλὰ καὶ τοῦτ' ἀδύνατον. δεῖ γὰρ σώ-

^a In 320 a 27 ff.

^b i.e. steam.

tude), so that growth must not be from matter without magnitude to an actuality of magnitude ; for that would be rather a coming-to-be of a body and not a growth. We must, therefore, lay hold more closely and, as it were, get to grips with our inquiry from the beginning as to the nature of growth and diminution, the causes of which we are seeking.

It appears that every part of that which grows has increased, and likewise in diminution every part has become smaller, and, further, that growth occurs when something is added and diminution when something departs. Growth, then, must be due to the addition of something incorporeal or of a body. If it is due to something incorporeal, there will be a void existing separately ; but, as has been stated before,^a it is impossible for matter of magnitude to exist separately ; whereas, if it grows by the addition of a body, there will be two bodies in the same place, one which grows and the other which causes the growth, and this also is impossible. But neither is it admissible for us to say that growth or diminution occurs in the manner in which it occurs when air ^b is produced from water. For then, the volume has become greater ; for it will not be a case of growth but of a coming-to-be of that into which the change has taken place, and a passing-away of its contrary. It is a growth of neither, but either of nothing or of something (for example, " body ") which belongs in common both to that which is coming-to-be and to that which has passed-away. The water has not grown nor has the air, but the former has perished and the latter has come-to-be ; and the " body," if anything, has grown. But this is also impossible ; for in our account we must preserve the character-

What is added when growth takes place ?

321 a

ζειν τῷ λόγῳ τὰ ὑπάρχοντα τῷ αὐξανομένῳ καὶ
 φθίνοντι. ταῦτα δὲ τρία ἐστίν, ὧν ἓν μὲν ἐστὶ τὸ
 20 ὅτιοῦν μέρος μείζον γίνεσθαι τοῦ αὐξανομένου
 μεγέθους, οἷον εἰ σὰρξ τῆς σαρκός, καὶ προσιόντος
 τινός, καὶ τρίτον σωζομένου τοῦ αὐξανομένου καὶ
 ὑπομένουτος· ἐν μὲν γὰρ τῷ γίνεσθαι τι ἀπλῶς
 ἢ φθείρεσθαι οὐχ ὑπομένει, ἐν δὲ τῷ ἀλλοιοῦσθαι
 ἢ αὐξάνεσθαι ἢ φθίνειν ὑπομένει τὸ αὐτὸ τὸ αὐ-
 25 ξανόμενον ἢ ἀλλοιούμενον· ἀλλ' ἔνθα μὲν τὸ πάθος
 ἔνθα δὲ τὸ μέγεθος τὸ αὐτὸ οὐ μένει. εἰ δὴ ἔσται
 ἡ εἰρημένη αὐξησης, ἐνδέχοιτ' ἂν μηδενός γε προσ-
 ιόντος μηδὲ ὑπομένουτος αὐξάνεσθαι καὶ μηδενός
 ἀπιόντος φθίνειν καὶ μὴ ὑπομένειν τὸ αὐξανόμενον.
 ἀλλὰ δεῖ τοῦτο σώζειν· ὑπόκειται γὰρ ἡ αὐξησης
 τοιούτον.

30 Ἀπορήσειε δ' ἂν τις καὶ τί ἐστὶ τὸ αὐξανόμε-
 νον, πότερον ᾧ προστίθεται τι, οἷον εἰ τὴν κνήμην
 αὐξάνει, αὕτη μείζων, ᾧ δὲ αὐξάνει, ἡ τροφή, οὔ.
 διὰ τί δὴ οὖν οὐκ ἄμφω ηὔξεται; μείζον γὰρ καὶ
 ὁ καὶ ᾧ, ὥσπερ ὅταν μίξις οἶνον ὕδατι· ὁμοίως
 γὰρ πλείον ἐκάτερον. ἢ ὅτι τοῦ μὲν μένει ἡ οὐσία,

35 τοῦ δ' οὔ, οἷον τῆς τροφῆς, ἐπεὶ καὶ ἐνταῦθα τὸ
 321 b ἐπικρατοῦν λέγεται ἐν τῇ μίξει, οἷον ὅτι οἶνος·
 ποιεῖ γὰρ τὸ τοῦ οἴνου ἔργον ἀλλ' οὐ τὸ τοῦ ὕδατος
 τὸ σύνολον μῖγμα. ὁμοίως δὲ καὶ ἐπ' ἀλλοιώσεως,
 εἰ μένει σὰρξ οὔσα καὶ τὸ τί ἐστὶ, πάθος δέ τι

^a i.e. the generation of air from water.

^b i.e. the persistence of that which grows.

^c In line 22 above.

^d With λέγεται understand πλείον.

istics which belong to what is growing and diminishing. These characteristics are three : (a) that every part of the growing magnitude is greater (for example, if flesh grows, every part of it grows) ; (b) that it grows by the accession of something ; and (c) that it grows because that which grows is preserved and persists. For while a thing does not persist in unqualified coming-to-be or passing-away, in alteration and growth or diminution that which grows or alters persists in its identity, but, in the case of alteration the quality, and, in the case of growth, the magnitude does not remain the same. Now if the change mentioned above ^a is to be growth, it would be possible for something to grow without anything being added to it or persisting and to diminish without anything going away, and for that which grows not to persist. But this quality ^b must be preserved ; for it has been assumed ^c that growth has this characteristic.

One might also raise this difficulty : What is it which grows ? Is it that to which something is added ? For example, if a man grows in his leg, is it his leg which is greater, while that which makes him grow, namely, his food, is not greater ? Why have not both grown ? For both that which is added and that to which the addition was made are greater, just as when you mix wine with water ; for each ingredient is similarly increased. Or is it because the substance of the leg remains unchanged, but that of the other (*i.e.* the food) does not ? For in the mixture of the wine and water it is the prevailing ingredient which is said to increase,^d namely the wine ; for the mixture as a whole performs the function of wine and not of water. Similarly, too, in the process of " alteration," flesh is " altered," if

What is it
that grows ?

321 b

ὑπάρχει τῶν καθ' αὐτό, ὃ πρότερον οὐχ ὑπῆρχεν,
 5 ἡλλοίωται τοῦτο· ᾧ δ' ἡλλοίωται, ὅτε μὲν οὐδὲν
 πέπονθεν, ὅτε δὲ καὶ κεῖνο. ἀλλὰ τὸ ἀλλοιοῦν καὶ
 ἡ ἀρχὴ τῆς κινήσεως ἐν τῷ αὐξανομένῳ καὶ τῷ
 ἀλλοιουμένῳ· ἐν τούτοις γὰρ τὸ κινεῖν, ἐπεὶ καὶ
 τὸ εἰσελθὼν γένοιτ' ἂν ποτε μείζον, καὶ τὸ ἀπο-
 λαῦσαν αὐτοῦ σῶμα, οἷον εἰ εἰσελθὼν γένοιτο
 10 πνεῦμα. ἀλλ' ἔφθαρταί γε τοῦτο παθόν, καὶ τὸ
 κινεῖν οὐκ ἐν τούτῳ.

Ἐπεὶ δὲ διηπόρηται περὶ αὐτῶν ἱκανῶς, δεῖ καὶ
 τῆς ἀπορίας πειραῖσθαι λύσιν εὑρεῖν, σώζοντας τὸ
 ὑπομένοντός τε τοῦ αὐξανομένου καὶ προσιόντος
 τινὸς αὐξάνεσθαι, ἀπιόντος δὲ φθίνειν, ἔτι δὲ τὸ
 ὅτιοῦν σημεῖον αἰσθητὸν ἢ μείζον ἢ ἔλαττον γεγο-
 15 νέναι, καὶ μήτε κενὸν εἶναι τὸ σῶμα μήτε δύο ἐν
 τῷ αὐτῷ τόπῳ μεγέθη μήτε ἄσωμάτῳ αὐξάνεσθαι.
 ληπτέον δὲ τὸ αἷτιον διορισαμένοις πρῶτον ἐν μὲν
 ὅτι τὰ ἀνομοιομερῆ αὐξάνεται τῷ τὰ ὁμοιομερῆ
 αὐξάνεσθαι (σύγκειται γὰρ ἐκ τούτων ἕκαστον),
 20 ἔπειθ' ὅτι σὰρξ καὶ ὀστοῦν καὶ ἕκαστον τῶν τοιού-
 των μορίων ἐστὶ διττόν, ὥσπερ καὶ τῶν ἄλλων τῶν
 ἐν ὕλῃ εἶδος ἐχόντων· καὶ γὰρ ἡ ὕλη λέγεται καὶ
 τὸ εἶδος σὰρξ ἢ ὀστοῦν. τὸ οὖν ὅτιοῦν μέρος
 αὐξάνεσθαι καὶ προσιόντος τινὸς κατὰ μὲν τὸ εἶδος
 ἐστὶν ἐνδεχόμενον, κατὰ δὲ τὴν ὕλην οὐκ ἔστιν.

^a i.e. the organic parts.^b i.e. the tissue.

it remains flesh and its substance remains the same, but some inherent quality now belongs to it which did not belong before ; but that by which it has been altered sometimes has not been affected but sometimes has also been affected. But that which causes alteration and the source of movement reside in that which grows and in that which is altered (for the motive agent is within them) ; for that which has entered might sometimes become greater as well as the body which benefits by it (for example, if, after entering in, it were to become wind), but after having undergone this process, it has passed-away and the motive agent is not in it.

Now that the difficulties have been adequately discussed, we must try to find a solution of the problem. In doing so we must maintain the doctrine that growth occurs, when that which grows persists and grows by the accession of something (and diminishes by the departure of something), and that every perceptible particle has become greater (or less), and that the body is not void, and that there are not two magnitudes in the same place, and that growth does not take place by the addition of anything incorporeal. We must grasp the cause of growth by making the distinctions (i) that the parts which are not uniform ^a grow by the growth of the parts which are uniform ^b—for each part is composed of these—and (ii) that flesh and bone and every such part, like all other things which have their form in matter, are of a double nature ; for the form as well as the matter is called flesh or bone. It is quite possible, then, that any part can grow in respect of *form* by the addition of something, but not in respect of *matter* ; for we must regard the process as like that

Conclusions
about
growth.

321 b

- δεῖ γὰρ νοῆσαι ὥσπερ εἴ τις μετροίῃ τῷ αὐτῷ
 25 μέτρῳ ὕδωρ· αἰεὶ γὰρ ἄλλο καὶ ἄλλο τὸ γινόμενον.
 οὕτω δ' αὐξάνεται ἢ ὕλη τῆς σαρκός, καὶ οὐχ
 ὅτωσιν παντὶ προσγίνεται, ἀλλὰ τὸ μὲν ὑπεκρεῖ
 τὸ δὲ προσέρχεται, τοῦ δὲ σχήματος καὶ τοῦ εἶδους
 ὅτωσιν μορίῳ. ἐπὶ δὲ τῶν ἀνομοιομερῶν τοῦτο
 μᾶλλον δῆλον, οἷον χειρός, ὅτι ἀνάλογον ηὔξεται·
 30 ἢ γὰρ ὕλη ἐτέρα οὔσα δῆλη μᾶλλον τοῦ εἶδους
 ἐνταῦθα ἢ ἐπὶ σαρκός καὶ τῶν ὁμοιομερῶν· διὸ
 καὶ τεθνεώτος μᾶλλον ἂν δόξειεν εἶναι ἔτι σὰρξ
 καὶ ὅστωσιν ἢ χεὶρ καὶ βραχίων. ὥστε ἔστι μὲν
 ὡς ὅτιοῦν τῆς σαρκός ηὔξεται, ἔστι δ' ὡς οὔ.
 κατὰ μὲν γὰρ τὸ εἶδος ὅτωσιν προσελήλυθεν, κατὰ
 35 δὲ τὴν ὕλην οὔ. μείζον μέντοι τὸ ὅλον γέγονε
 322 a προσελθόντος μὲν τινος, ὃ καλεῖται τροφή καὶ
 ἐναντίον, μεταβάλλοντος δὲ εἰς τὸ αὐτὸ εἶδος, οἷον
 εἰ ξηρῷ προσίῳι ὑγρόν, προσελθὸν δὲ μεταβάλοι
 καὶ γένοιτο ξηρόν· ἔστι μὲν γὰρ ὡς τὸ ὅμοιον
 ὁμοίῳ αὐξάνεται, ἔστι δ' ὡς τὸ ἀνόμοιον¹ ἀνο-
 μοίῳ.
- 5 Ἀπορήσειε δ' ἂν τις ποῖόν τι δεῖ εἶναι τὸ ᾧ
 αὐξάνεται. φανερόν δὴ ὅτι δυνάμει ἐκεῖνο, οἷον
 εἰ σὰρξ, δυνάμει σάρκα. ἐντελεχείᾳ ἄρα ἄλλο·
 φθαρὲν δὴ τοῦτο σὰρξ γέγονεν. οὐκοῦν οὐκ αὐτὸ
 καθ' αὐτό (γένεσις γὰρ ἂν ἦν, οὐκ αὔξησις)· ἀλλὰ

¹ τὸ ἀνόμοιον addidi.

which happens when a man measures water with the same measure, for there is first one portion and then another in constant succession. It is in this way that the matter of the flesh grows ; something flows out and something flows in, but there is not an addition made to every particle of it, but to every part of its figure and " form." That the growth has taken place proportionally is more obvious in the parts which are not uniform, for instance, in the hand ; for there the matter, being distinct from the form, is more noticeable than in the flesh and the parts which are uniform ; for this reason one is more likely to think of a corpse as still possessing flesh and bone than that it has a hand and an arm. Therefore, in one sense it is true that every part of the flesh has grown, but in another sense it is untrue ; for in respect to its form there has been an accession to every part, but not in respect to its matter ; the whole, however, has become greater (*a*) by the accession of something which is called food, the " contrary " of flesh, and (*b*) by the change of this food into the same form as that of the flesh, just as if moist were to be added to dry, and, after having been added, were to change and become dry ; for, it is possible that " like grows by like " and also that " unlike grows by unlike."

One might raise the question what must be the nature of that by which a thing grows. It is clear that it must be potentially that which is growing, for example, potentially flesh, if it is flesh which is growing ; actually, then, it is something different. This, therefore, has passed-away and come-to-be flesh—not alone by itself (for that would have been a coming-to-be and not growth) ; but it is that which

τὸ αὐξανόμενον τούτῳ. τί οὖν παθὸν ὑπὸ τούτου
 [ἡυξήθη]¹; ἢ μιχθέν, ὥσπερ οἶνω εἴ τις ἐπιχέοι
 10 ὕδωρ, ὃ δὲ δύναιτο οἶνον ποιεῖν τὸ μιχθέν; καὶ
 ὥσπερ τὸ πῦρ ἀψάμενον τοῦ καυστοῦ, οὕτως ἐν
 τῷ αὐξανομένῳ καὶ ὄντι ἐντελεχεία σαρκὶ τὸ ἐνὸν
 αὐξητικὸν προσελθόντος δυνάμει σαρκὸς ἐποίησεν
 ἐντελεχεία σάρκα. οὐκοῦν ἅμα ὄντος· εἰ γὰρ χωρίς,
 γένεσις. ἔστι μὲν γὰρ οὕτω πῦρ ποιῆσαι ἐπὶ τὸ
 15 ὑπάρχον ἐπιθέντα ξύλα. ἀλλ' οὕτω μὲν αὔξεις,
 ὅταν δὲ αὐτὰ τὰ ξύλα ἀφθῇ, γένεσις.

Ποσὸν δὲ τὸ μὲν καθόλου οὐ γίνεται, ὥσπερ
 οὐδὲ ζῶον ὃ μήτ' ἄνθρωπος μήτε τῶν καθ' ἕκαστα·
 ἀλλ' ὥς ἐνταῦθα τὸ καθόλου, κακεῖ τὸ ποσόν.
 σὰρξ δὲ ἢ ὅστουν ἢ χεῖρ καὶ τούτων τὰ ὁμοιομερῆ,
 20 προσελθόντος μὲν δὴ τινος ποσοῦ, ἀλλ' οὐ σαρκὸς
 ποσῆς. ἢ μὲν οὖν δυνάμει τὸ συναμφότερον, οἶον
 ποσὴ σὰρξ, ταύτῃ μὲν αὔξει· καὶ γὰρ ποσὴν δεῖ
 γενέσθαι καὶ σάρκα· ἢ δὲ μόνον σὰρξ, τρέφει·
 ταύτῃ γὰρ διαφέρει τροφή καὶ αὔξεις τῷ λόγῳ.
 διὸ τρέφεται μὲν ἕως ἄν σώζεται καὶ φθίνον,²
 25 αὐξάνεται δὲ οὐκ ἀεί. καὶ ἡ τροφή τῇ αὐξήσει τὸ
 αὐτὸ μὲν, τὸ δ' εἶναι ἄλλο· ἢ μὲν γὰρ ἐστι τὸ

¹ ἡυξήθη seclutit Joachim.

² φθίνον I.: φθίνει F.: φθίνῃ H.

^a And not a growth of already existent tissue.

grows which now comes-to-be flesh owing to the food. How has the food been affected by the growing thing? Is it by admixture, as if one were to pour water into wine, and the latter were able to convert the mixture into wine? And like fire when it takes hold of inflammable material, so the principle of growth present in that which grows (*i.e.* in what is actually flesh) lays hold of the added food which is potentially flesh, and turns it into actual flesh. The added food must, therefore, be together with that which grows; for, if it is separate, it would be a case of coming-to-be.^a For it is possible to produce fire by placing logs on the fire which is already in existence; in this case there is growth, but, when the logs themselves are set on fire, there is a coming-to-be of fire.

"Quantum-in-general" does not come-to-be, just as "animal," which is neither man nor any other particular animal, does not come-to-be; but what "animal-in-general" is in coming-to-be, that "quantum-in-general" is in growth. But what comes-to-be in growth is flesh or bone or hand and the uniform parts of these, by the accession of such-and-such a quantity of something, but not of such-and-such a quantity of flesh. In so far, then, as the combination of the two, *e.g.*, so much flesh, is a potentiality, it produces growth; for both quantity and flesh must come-to-be, but in so far as it is potentially flesh only, it nourishes; for it is here that nutrition and growth differ in their definition. Therefore the body is nourished as long as it is kept alive, even when it is diminishing, but it is not always growing; and nutrition, though it is the same as growth, is different in its being; for, in so far as that which is added is

322 a

προσιὸν δυνάμει ποσὴ σάρξ, ταύτῃ μὲν αὐξητικὸν σαρκός, ἥ δὲ μόνον δυνάμει σάρξ, τροφή.

Τοῦτο δὲ τὸ εἶδος [ἄνευ ὕλης],¹ οἷον αὐλός,² δυνάμεις τις ἐν ὕλῃ ἐστίν. ἐὰν δέ τις προσήῃ ὕλῃ, οὔσα
 30 δυνάμει αὐλός,² ἔχουσα καὶ τὸ ποσὸν δυνάμει, οὔτοι ἔσονται μείζους αὐλοί.² ἐὰν δὲ μηκέτι ποιεῖν δύνηται, ἀλλ' οἷον ὕδωρ οἴνῳ ἀεὶ πλείον μινγνύμενον τέλος ὑδαρῇ ποιεῖ καὶ ὕδωρ, τότε φθίσιν ποιεῖται τοῦ ποσοῦ, τὸ δ' εἶδος μένει.

322 b

6. Ἐπεὶ δὲ πρῶτον δεῖ περὶ τῆς ὕλης καὶ τῶν καλουμένων στοιχείων εἰπεῖν, εἴτ' ἔστιν εἴτε μή, καὶ πότερον αἰδῖον ἕκαστον ἢ γίνεται πως, καὶ εἰ γίνεται, πότερον ἐξ ἀλλήλων γίνεται πάντα τὸν
 5 αὐτὸν τρόπον ἢ τι πρῶτον ἐν αὐτῶν ἐστίν, ἀνάγκη δὴ πρότερον εἰπεῖν περὶ ὧν ἀδιορίστως λέγεται νῦν. πάντες γὰρ οἷ τε τὰ στοιχεῖα γεννῶντες καὶ οἱ τὰ ἐκ τῶν στοιχείων διακρίσει χρῶνται καὶ συγκρίσει καὶ τῷ ποιεῖν καὶ πάσχειν. ἔστι δ' ἡ σύγκρισις μίξις· πῶς δὲ μίγνυσθαι λέγομεν, οὐ διώριστα σαφῶς. ἀλλὰ μὴν οὐδ' ἀλλοιοῦσθαι
 10 δυνατὸν, οὐδὲ διακρίνεσθαι καὶ συγκρίνεσθαι, μηδενὸς ποιοῦντος μηδὲ πάσχοντος· καὶ γὰρ οἱ πλείων τὰ στοιχεῖα ποιοῦντες γεννῶσι τῷ ποιεῖν καὶ πάσχειν ὑπ' ἀλλήλων, καὶ τοῖς ἐξ ἐνὸς ἀνάγκη

¹ ἄνευ ὕλης secluserit Joachim.

² αὐλός . . . αὐλός . . . αὐλοί Joachim : αὐλος . . . αὐλος . . . αὐλοι codd : *tibia* . . . *tibia* . . . *tibiae* vertit Vatablus.

^a In 321 b 22 ff.

^b i.e. the Pluralists, like Anaxagoras, Democritus and Plato, who regard Earth, Air, Fire and Water as composed of some prior constituents.

^c i.e. other Pluralists, like Empedocles, who regard them as actual elements.

COMING-TO-BE AND PASSING-AWAY, I. 5-6

potentially so much flesh, it is productive of the growth of flesh, but, in so far as it is only potentially flesh, it is nutriment.

This "form" of which we spoke ^a is a kind of power present in matter, as it were a channel. If, therefore, matter is added which is potentially a channel and also potentially possesses such-and-such a quantity, these channels will become bigger. But if the "form" is no longer able to function, but, as water mixed with wine in ever-increasing quantities eventually makes the wine waterish and converts it into water, it will cause a diminution of the quantity, though the "form" still persists.

6. We must first deal with the *matter* and the so-called "elements" and determine whether they exist or not, and whether each is eternal, or whether there is a sense in which they come-to-be, and, if so, whether they all come-to-be in the same manner out of one another, or whether one among them is something primary. We must, therefore, first deal with matters about which people at present speak only vaguely. For all those who generate the elements ^b and those who generate the bodies composed of the elements, ^c apply the terms "dissociation" and "association" and "action" and "passion." Now "association" is a process of mixing; but what we mean by mixing has not yet been clearly defined. But there cannot be "alteration" any more than there can be "dissociation" and "association" without an "agent" and a "patient." For those who suppose the elements to be several in number ascribe the generation of composite bodies to the reciprocal "action" and "passion" of these elements, whereas those who derive them from a

Chs. 6-10.
That which comes-to-be is formed of material constituents by their combination. Combination involves "action" and "passion" which involve "contact."

322 b

λέγειν τὴν ποιήσιν, καὶ τοῦτ' ὀρθῶς λέγει Διο-
 γένης, ὅτι εἰ μὴ ἐξ ἑνὸς ἦν ἅπαντα, οὐκ ἂν ἦν τὸ
 15 ποιεῖν καὶ τὸ πάσχειν ὑπ' ἀλλήλων, οἷον τὸ θερμὸν
 ψύχεσθαι καὶ τοῦτο θερμαίνεσθαι πάλιν· οὐ γὰρ
 ἡ θερμότης μεταβάλλει καὶ ἡ ψυχρότης εἰς ἄλληλα,
 ἀλλὰ δῆλον ὅτι τὸ ὑποκείμενον. ὥστε ἐν οἷς τὸ
 ποιεῖν ἐστὶ καὶ τὸ πάσχειν, ἀνάγκη τούτων μίαν
 εἶναι τὴν ὑποκειμένην φύσιν. τὸ μὲν οὖν πάντ'
 20 εἶναι τοιαῦτα φάσκειν οὐκ ἀληθές, ἀλλ' ἐν ὅσοις
 τὸ ὑπ' ἀλλήλων ἐστίν.

Ἄλλὰ μὴν εἰ περὶ τοῦ ποιεῖν καὶ πάσχειν καὶ
 περὶ μίξεως θεωρητέον, ἀνάγκη καὶ περὶ ἀφῆς·
 οὔτε γὰρ ποιεῖν ταῦτα καὶ πάσχειν δύνάται κυρίως
 ἂ μὴ οἶόν τε ἄψασθαι ἀλλήλων, οὔτε μὴ ἀψάμενά
 25 πῶς ἐνδέχεται μιχθῆναι πρῶτον. ὥστε περὶ τριῶν
 τούτων διοριστέον, τί ἀφῆ καὶ τί μίξις καὶ τί
 ποίησις.

Ἀρχὴν δὲ λάβωμεν τήνδε. ἀνάγκη γὰρ τῶν
 ὄντων ὅσοις ἐστὶ μίξις, εἶναι ταῦτ' ἀλλήλων ἀπτικά·
 καὶ εἴ τι ποιεῖ, τὸ δὲ πάσχει κυρίως, καὶ τούτοις
 ὡσαύτως. διὸ πρῶτον λεκτέον περὶ ἀφῆς. σχεδὸν
 30 μὲν οὖν, ὥσπερ καὶ τῶν ἄλλων ὀνομάτων ἕκαστον
 λέγεται πολλαχῶς, καὶ τὰ μὲν ὁμωνύμως τὰ δὲ
 θάτερα ἀπὸ τῶν ἐτέρων καὶ τῶν προτέρων, οὕτως
 ἔχει καὶ περὶ ἀφῆς. ὅμως δὲ τὸ κυρίως λεγόμενον
 323 a ὑπάρχει τοῖς ἔχουσι θέσιν. θέσις δ' οἷσπερ καὶ

^a Fr. 2 (Diels).

COMING-TO-BE AND PASSING-AWAY, I. 6

single element must necessarily hold that there is "action"; and Diogenes^a is right in saying that there could not be reciprocal action and passion, unless all things were derived from one. For example, what is hot would not become cold, and the cold become hot again; for it is not heat and cold which change into one another, but it is obviously the substratum which changes; so that, where action and passion exist, their underlying nature must be one. It is not, however, true to say that *all* things are of this kind; but it is true of all things between which there is reciprocal action and passion.

But if we must go into the question of "action" and "passion" and of "commingling," we must also investigate "contact." For action and passion ought properly to be possible only for such things as can touch one another; nor can things be mixed with one another in the first instance without coming in some kind of contact. Hence we must decide about these three things, namely, what is "contact," what is "mixture," and what is "action."

What is
contact?

Let us take this as our starting-point. All existing things which can undergo mixture must be able to come into contact with one another, and this must also be true of any pair of things, one of which acts and the other is acted upon in the proper sense of the word. Therefore we must first speak about "contact." Practically speaking, just as every other term which is used in several senses is so used owing to verbal coincidence or because the different senses are derived from different prior meanings, so it is also with "contact." Nevertheless, "contact" in its proper sense belongs only to things which have "position," and "position" belongs to those things

323 a

τόπος· καὶ γὰρ τοῖς μαθηματικοῖς ὁμοίως ἀποδο-
 τέον ἀφήν καὶ τόπον, εἴτ' ἐστὶ κεχωρισμένον ἑκα-
 στον αὐτῶν εἴτ' ἄλλον τρόπον. εἰ οὖν ἐστίν, ὥσπερ
 διωρίσθη πρότερον, τὸ ἄπτεσθαι τὸ τὰ ἔσχατα
 5 ἔχειν ἅμα, ταῦτα ἂν ἄπτοιτο ἀλλήλων ὅσα διωρι-
 σμένα μεγέθη καὶ θέσιν ἔχοντα ἅμα ἔχει τὰ ἔσχατα.
 ἐπεὶ δὲ θέσις μὲν ὅσοις καὶ τόπος ὑπάρχει, τόπου
 δὲ διαφορὰ πρώτη τὸ ἄνω καὶ κάτω καὶ τὰ τοιαῦτα
 τῶν ἀντικειμένων, ἅπαντα τὰ ἀλλήλων ἀπτόμενα
 βάρος ἂν ἔχοι ἢ κουφότητα, ἢ ἄμφω ἢ θάτερον.
 10 τὰ δὲ τοιαῦτα παθητικὰ καὶ ποιητικὰ· ὥστε φανερόν
 ὅτι ταῦτα ἄπτεσθαι πέφυκεν ἀλλήλων, ὧν διηρη-
 μένων μεγεθῶν ἅμα τὰ ἔσχατά ἐστιν, ὄντων κινη-
 τικῶν καὶ κινητῶν ὑπ' ἀλλήλων. ἐπεὶ δὲ τὸ κινεῖν
 οὐχ ὁμοίως κινεῖ τὸ κινούμενον, ἀλλὰ τὸ μὲν ἀνάγκη
 κινούμενον καὶ αὐτὸ κινεῖν, τὸ δ' ἀκίνητον ὄν, δη-
 15 λον ὅτι καὶ ἐπὶ τοῦ ποιοῦντος ἐροῦμεν ὡσαύτως·
 καὶ γὰρ τὸ κινεῖν ποιεῖν τί φασι καὶ τὸ ποιεῖν
 κινεῖν. οὐ μὲν ἀλλὰ διαφέρει γε καὶ δεῖ διορίζειν·
 οὐ γὰρ οἷόν τε πᾶν τὸ κινεῖν ποιεῖν, εἴπερ τὸ
 ποιεῖν ἀντιθήσομεν τῷ πάσχοντι, τοῦτο δ' οἷς ἢ
 κίνησις πάθος, πάθος δὲ καθ' ὅσον ἀλλοιοῦται

^a *Phys.* 226 b 21-23.

COMING-TO-BE AND PASSING-AWAY, I. 6

which have also a "place"; for "place," just as much as "contact," must be attributed to mathematical objects, whether each exists in separation or in some other manner. If, therefore, as has been defined in a previous work,^a for things to be in "contact" they must have their extremities together, only those things would be in contact with one another, which, possessing definite magnitudes and a definite position, have their extremities together. Now, since position belongs to such things as also have a "place," and the primary differentiation of "place" is "above" and "below" and other such pairs of opposites, all things which are in contact with one another would have "weight" and "lightness," either both of these qualities or one or other of them. Now such things are capable of "acting" and "being acted upon"; so that it is clear that those things are of a nature to be in contact with one another, the extremities of whose separate magnitudes are "together" and which are capable of moving one another and being moved by one another. But, since that which moves does not always move that which is moved in the same way, but one mover must move by being itself moved, and another while itself remaining unmoved, it is clear that we must speak in the same terms about that which "acts"; for the "moving thing" is said to "act" (in a sense) and the "acting thing" to "move." There is, however, a difference, and a distinction must be made; for not every "mover" can "act," if we are going to employ the term "agent" in contrast to the term "patient," and the term "patient" is applied only to those things for which the movement is an "affection" ^b

^b See *Met.* x. 1022 b 15 ff.

323 a

20 μόνον, οἷον τὸ λευκὸν καὶ τὸ θερμόν· ἀλλὰ τὸ κινεῖν ἐπὶ πλεόν τοῦ ποιεῖν ἐστίν. ἐκείνο δ' οὖν φανερόν, ὅτι ἔστι μὲν ὡς τὰ κινουῦντα τῶν κινητῶν ἅπτοιτ' ἄν, ἔστι δ' ὡς οὐ. ἀλλ' ὁ διορισμὸς τοῦ ἅπτεσθαι καθόλου μὲν ὁ τῶν θέσιν ἐχόντων καὶ τοῦ μὲν κινητικοῦ τοῦ δὲ κινητοῦ, πρὸς ἀλλήλα δέ, κινη-
 25 τικοῦ καὶ κινητοῦ ἐν οἷς ὑπάρχει τὸ ποιεῖν καὶ τὸ πάσχειν. ἔστι μὲν οὖν ὡς ἐπὶ τὸ πολὺ τὸ ἀπτόμενον ἀπτομένου ἀπτόμενον· καὶ γὰρ κινεῖ κινούμενα πάντα σχεδὸν τὰ ἐμποδῶν, ὅσοις ἀνάγκη καὶ φαίνεται τὸ ἀπτόμενον ἅπτεσθαι ἀπτομένου· ἔστι δ', ὡς ἐνίotide φαμεν, τὸ κινεῖν ἅπτεσθαι μόνον τοῦ κινουμένου, τὸ δ' ἀπτόμενον μὴ ἅπτεσθαι ἀπτο-
 30 μένου· ἀλλὰ διὰ τὸ κινεῖν κινούμενα τὰ ὁμογενῇ, ἀνάγκη δοκεῖ εἶναι ἀπτομένου ἅπτεσθαι. ὥστε εἴ τι κινεῖ ἀκίνητον ὄν, ἐκείνο μὲν ἂν ἅπτοιτο τοῦ κινητοῦ, ἐκείνου δὲ οὐδέν· φαμέν γὰρ ἐνίotide τὸν λυποῦντα ἅπτεσθαι ἡμῶν, ἀλλ' οὐκ αὐτοὶ ἐκείνου. περὶ μὲν οὖν ἀφῆς τῆς ἐν τοῖς φυσικοῖς διωρίσθω τοῦτον τὸν τρόπον.

323 b 7. Περὶ δὲ τοῦ ποιεῖν καὶ πάσχειν λεκτέον ἐφεξῆς, παρειλήφαμεν δὲ παρὰ τῶν πρότερον ὑπεναν-

COMING-TO-BE AND PASSING-AWAY, I. 6-7

(an "affection," that is, such as whiteness and heat, in virtue of which they only undergo "alteration"), whereas to "move" is a wider term than to "act." But this, at any rate, is clear, that there is a sense in which the things which move can come into contact with the things which are capable of being moved, and a sense in which they cannot do so. But the distinction between contact in the most general sense and "reciprocal contact" is that, in the first sense, two objects should have position and that one should be capable of moving and the other of being moved; in the second sense, that there should be one thing capable of moving and another of being moved, possessing, respectively, the qualities of "agent" and "patient." Generally, no doubt, if one thing touches another, the latter also touches the former; for almost all things, when they move, cause motion in the things which stand in their way, and in these cases that which touches must, and obviously *does*, touch that which touches it. But it is possible, as we say sometimes, for that which causes motion merely to touch that which is moved, and that which touches need not touch something which touches it; but because things of the same kind impart motion by being moved, it seems to follow necessarily that they touch that which touches them. Hence, if anything causes motion without being itself moved, it might touch that which is moved, though not itself touched by anything; for we say sometimes that a man who grieves us "touches" us, though we ourselves do not "touch" him. So much for our definition of contact in the realm of Nature.

7. Next we must deal with "action" and "passion." We have inherited conflicting accounts from "Action" and "Passion";

τίους ἀλλήλοις λόγους. οἱ μὲν γὰρ πλείστοι τοῦτο
γε ὁμονοητικῶς λέγουσιν, ὥς τὸ μὲν ὅμοιον ὑπὸ
5 τοῦ ὁμοίου πᾶν ἀπαθές ἐστι διὰ τὸ μηδὲν μᾶλ-
λον ποιητικὸν ἢ παθητικὸν εἶναι θάτερον θατέρου
(πάντα γὰρ ὁμοίως ὑπάρχειν ταῦτα τοῖς ὁμοίοις),
τὰ δ' ἀνόμοια καὶ τὰ διάφορα ποιεῖν καὶ πάσχειν
εἰς ἄλληλα πέφυκεν. καὶ γὰρ ὅταν τὸ ἔλαττον
πῦρ ὑπὸ τοῦ πλείονος φθείρηται, διὰ τὴν ἐναντίωσιν
10 τοῦτο φασὶ πάσχειν· ἐναντίον γὰρ εἶναι τὸ πολὺ
τῷ ὀλίγῳ. Δημόκριτος δὲ παρὰ τοὺς ἄλλους ἰδίως
ἔλεξε μόνος· φησὶ γὰρ τὸ αὐτὸ καὶ ὅμοιον εἶναι
τό τε ποιοῦν καὶ τὸ πάσχον· οὐ γὰρ ἐγχωρεῖν τὰ
ἕτερα καὶ διαφέροντα πάσχειν ὑπ' ἀλλήλων, ἀλλὰ
καὶ ἕτερα ὄντα ποιῇ τι εἰς ἄλληλα, οὐχ ἢ ἕτερα
15 ἀλλ' ἢ ταῦτόν τι ὑπάρχει, ταύτῃ τοῦτο συμβαίνειν
αὐτοῖς.

Τὰ μὲν οὖν λεγόμενα ταῦτ' ἐστίν, εἰκόασι δὲ
οἱ τοῦτον τὸν τρόπον λέγοντες ὑπεναντία φαί-
νεσθαι λέγειν. αἷτιον δὲ τῆς ἐναντιολογίας ὅτι
δέον ὅλον τι θεωρῆσαι μέρος τι τυγχάνουσι λέ-
γοντες ἐκάτεροι· τό τε γὰρ ὅμοιον καὶ τὸ πάντῃ
20 πάντως ἀδιάφορον εὐλογον μὴ πάσχειν ὑπὸ τοῦ
ὁμοίου μηδέν (τί γὰρ μᾶλλον θάτερον ἔσται ποιη-
τικὸν ἢ θάτερον; εἴ τε¹ ὑπὸ τοῦ ὁμοίου τι πάσχειν
δυνατόν, καὶ αὐτὸ ὑφ' αὐτοῦ· καίτοι τούτων οὕτως
ἐχόντων οὐδὲν ἂν εἴη οὔτε ἄφθαρτον οὔτε ἀκίνη-
τον, εἴπερ τὸ ὅμοιον ἢ ὅμοιον ποιητικόν, αὐτὸ γὰρ

¹ εἴ τε Bonitz : εἴτε Bekker.

COMING-TO-BE AND PASSING-AWAY, I. 7

our predecessors. For most of them agree in declaring that (i) like is always unaffected by like because, of two things which are like, neither is, they argue, at all more liable than the other to act or to be acted upon (for all the same properties belong in a like degree to things which are like), and (ii) things which are unlike and different are naturally disposed to reciprocal action and passion; for, when the lesser fire is destroyed by the greater, it is said to be thus affected owing to its contrariety, the great being the contrary of the small. Democritus, however, in disagreement with all other philosophers, held a view peculiar to himself; for he says that the agent and the patient are the same and alike, for (he declares) it is not possible for things which are "other" and different to be affected by one another, but even if two things which are "other" do act in any way upon one another, this occurs to them not in as much as they are "other," but because some identical property belongs to them both.

view of
earlier
philo-
sophers.

These, then, are the views expressed, and it appears that those who so expressed them were obviously in opposition to one another. But the reason of this opposition is that each school, when they ought to have viewed the problem as a whole, in fact only stated part of the truth. For, firstly, it is reasonable to hold that that which is like another thing, that is, in every respect absolutely without difference from it, cannot be in any way affected by the other thing which is like it. (For why should one be more likely to act than the other? And if like can be affected by like, it can also be affected by itself; yet, if that were so—if like were liable to act *qua* like—nothing would be indestructible or immovable, for everything

323 b

25 αὐτὸ κινήσει πᾶν). τό τε παντελῶς ἕτερον καὶ τὸ μηδαμῇ ταῦτὸν ὡσαύτως. οὐδὲν γὰρ ἂν πάθοι λευκότης ὑπὸ γραμμῆς ἢ γραμμῇ ὑπὸ λευκότητος, πλὴν εἰ μή που κατὰ συμβεβηκός, οἷον εἰ συμβέβηκε λευκὴν ἢ μέλαιναν εἶναι τὴν γραμμὴν· οὐκ ἐξίστησι γὰρ ἀλλήλα τῆς φύσεως ὅσα μήτ' ἐναντία

30 μήτ' ἐξ ἐναντίων ἐστίν. ἀλλ' ἐπεὶ οὐ τὸ τυχὸν πέφυκε πάσχειν καὶ ποιεῖν, ἀλλ' ὅσα ἢ ἐναντία ἐστίν ἢ ἐναντίωσιν ἔχει, ἀνάγκη καὶ τὸ ποιοῦν καὶ τὸ πάσχον τῷ γένει μὲν ὅμοιον εἶναι καὶ ταυτό, τῷ δ' εἶδει ἀνόμοιον καὶ ἐναντίον (πέφυκε γὰρ σῶμα μὲν ὑπὸ σώματος, χυμὸς δ' ὑπὸ χυμοῦ,

324 a χρῶμα δ' ὑπὸ χρώματος πάσχειν, ὅλως δὲ τὸ ὁμογενὲς ὑπὸ τοῦ ὁμογενοῦς. τούτου δ' αἷτιον ὅτι τὰναντία ἐν ταύτῳ γένει πάντα, ποιεῖ δὲ καὶ πάσχει τὰναντία ὑπ' ἀλλήλων), ὥστ' ἀνάγκη πῶς μὲν εἶναι ταῦτα τό τε ποιοῦν καὶ τὸ πάσχον, πῶς δ' 5 ἕτερα καὶ ἀνόμοια ἀλλήλοις. ἐπεὶ δὲ καὶ τὸ πάσχον καὶ τὸ ποιοῦν τῷ μὲν γένει ταῦτα καὶ ὅμοια τῷ δ' εἶδει ἀνόμοια, τοιαῦτα δὲ τὰναντία, φανερόν ὅτι παθητικὰ καὶ ποιητικὰ ἀλλήλων ἐστὶ τὰ τ' ἐναντία καὶ τὰ μεταξύ· καὶ γὰρ ὅλως φθορὰ καὶ γένεσις ἐν τούτοις.

10 Διὸ καὶ εὐλογον ἤδη τό τε πῦρ θερμαίνειν καὶ τὸ ψυχρὸν ψύχειν, καὶ ὅλως τὸ ποιητικὸν ὁμοιοῦν ἑαυτῷ τὸ πάσχον· τό τε γὰρ ποιοῦν καὶ τὸ πάσχον ἐναντία ἐστί, καὶ ἡ γένεσις εἰς τοῦναντίον. ὥστ'

will move itself.) And, secondly, the same thing happens if there is complete difference and no kind of identity. For whiteness could not be affected in any degree by line, or line by whiteness, except perhaps incidentally, if, for example, it happened that the line was white or black ; for unless the two things are contraries or made up of contraries, one cannot displace the other from its natural condition. But, since only such things as possess contrariety or are themselves actual contraries—and not any chance things—are naturally adapted to be acted upon and to act, both “ agent ” and “ patient ” must be alike and identical in kind, but unlike and contrary in species. For body is by nature adapted so as to be affected by body, flavour by flavour, colour by colour, and in general that which is of the same kind by something else of the same kind ; and the reason of this is that contraries are always within the same kind, and it is contraries which act and are acted upon reciprocally. Hence “ agent ” and “ patient ” are necessarily in one sense the same, and in another sense “ other ” and unlike one another ; and since “ agent ” and “ patient ” are identical in kind and like, but unlike in species, and it is contraries which have these characteristics, it is clear that contraries and their “ intermediates ” are capable of being affected and of acting reciprocally—indeed it is entirely these processes which constitute passing-away and coming-to-be.

Aristotle's
definition of
“ agent ”
and
“ patient.”

It is, then, now reasonable to hold both that fire heats and that what is cold cools and, in general, that what is active assimilates that which is passive to itself ; for the agent and patient are contrary to one another, and coming-to-be is a process into the

324 a

- ἀνάγκη τὸ πάσχον εἰς τὸ ποιοῦν μεταβάλλειν·
οὕτω γὰρ ἔσται εἰς τοῦναντίον ἢ γένεσις. καὶ
15 κατὰ λόγον δὴ τὸ μὴ ταῦτὰ λέγοντας ἀμφοτέρους
ὁμῶς ἄπτεσθαι τῆς φύσεως. λέγομεν γὰρ πάσχειν
ὅτε μὲν τὸ ὑποκείμενον (οἶον ὑγιαίνειν τὸν ἄνθρω-
πον καὶ θερμαίνεσθαι καὶ ψύχεσθαι καὶ τᾶλλα τὸν
αὐτὸν τρόπον), ὅτε δὲ θερμαίνεσθαι μὲν τὸ ψυχρόν,
ὑγιαίνειν δὲ τὸ κάμνον· ἀμφοτέρα δ' ἐστὶν ἀληθῆ
20 (τὸν αὐτὸν δὲ τρόπον καὶ ἐπὶ τοῦ ποιοῦντος· ὅτε
μὲν γὰρ τὸν ἄνθρωπόν φαμεν θερμαίνειν, ὅτε δὲ
τὸ θερμόν· ἔστι μὲν γὰρ ὡς ἡ ὕλη πάσχει, ἔστι δ'
ὡς τοῦναντίον). οἱ μὲν οὖν εἰς ἐκεῖνο βλέψαντες
ταῦτόν τι δεῖν ᾤκηθησαν τὸ ποιοῦν ἔχειν καὶ τὸ
πάσχον, οἱ δ' εἰς θάτερα τοῦναντίον.
- 25 Τὸν αὐτὸν δὲ λόγον ὑποληπτέον εἶναι περὶ τοῦ
ποιεῖν καὶ πάσχειν ὅνπερ καὶ περὶ τοῦ κινεῖν καὶ
κινεῖσθαι. διχῶς γὰρ λέγεται καὶ τὸ κινεῖν· ἐν
ᾧ τε γὰρ ἡ ἀρχὴ τῆς κινήσεως, δοκεῖ τοῦτο κινεῖν
(ἡ γὰρ ἀρχὴ πρώτη τῶν αἰτίων), καὶ πάλιν τὸ
ἔσχατον πρὸς τὸ κινούμενον καὶ τὴν γένεσιν.
ὁμοίως δὲ καὶ περὶ τοῦ ποιοῦντος· καὶ γὰρ τὸν
30 ἱατρὸν φαμεν ὑγιαίνειν καὶ τὸν οἶνον. τὸ μὲν οὖν
πρῶτον κινεῖν οὐδὲν κωλύει ἐν μὲν κινήσει ἀκίνη-
τον εἶναι (ἐπ' ἐνίων δὲ καὶ ἀναγκαῖον), τὸ δ'
ἔσχατον ἀεὶ κινεῖν κινούμενον, ἐπὶ δὲ ποιήσεως

^a i.e. immediately next to that which is moved.

contrary, so that the patient must change into the agent, since only thus will coming-to-be be a process into the contrary. And it is reasonable to suppose that both schools, though they do not express the same views, are yet in touch with the nature of things. For we sometimes say that it is the substratum which is acted upon (for example, we talk of a man as being restored to health and warmed and chilled and so on), and sometimes we say that what is cold is being warmed and what is ill is being restored to health. Both these ways of putting the case are true (and similarly with the agent : for at one time we say that it is the man that causes heat, and at another time that it is that which is hot ; for in one sense it is the matter which is acted upon and in another sense it is the "contrary"). One school, therefore, directed its attention to the substratum and thought that the agent and patient must possess something identical, the other school, with its attention on the contraries, held the opposite view.

We must suppose that the same account holds good of "action" and "passion" as about moving and being moved. For "move" is also used in two senses ; for that in which the original source of motion resides is generally held to cause motion (for the original source is the first of causes), and so also is that which is last in relation to that which is moved ^a and to the process of coming-to-be. Similarly, too, in the case of the agent ; for we speak of the doctor, and also of wine, as healing. Now, in motion, there is nothing to prevent the first mover being unmoved (in fact in some cases it is actually necessary), but the last mover always causes motion by itself being moved ; and in action, there is nothing to prevent

ARISTOTLE

324 a

τὸ μὲν πρῶτον ἀπαθές, τὸ δ' ἔσχατον καὶ αὐτὸ πάσχον· ὅσα γὰρ μὴ ἔχει τὴν αὐτὴν ὕλην, ποιεῖ

35 ἀπαθῆ ὄντα (οἷον ἡ ἰατρικὴ, αὐτὴ γὰρ ποιούσα

324 b ὑγίειαν οὐδὲν πάσχει ὑπὸ τοῦ ὑγιαζομένου), τὸ δὲ σιτίον ποιοῦν καὶ αὐτὸ πάσχει τι· ἢ γὰρ θερμαίνεται ἢ ψύχεται ἢ ἄλλο τι πάσχει ἅμα ποιοῦν. ἔστι δὲ ἡ μὲν ἰατρικὴ ὡς ἀρχή, τὸ δὲ σιτίον τὸ ἔσχατον καὶ ἀπτόμενον.

5 "Ὅσα μὲν οὖν μὴ ἐν ὕλῃ ἔχει τὴν μορφήν, ταῦτα μὲν ἀπαθῆ τῶν ποιητικῶν, ὅσα δ' ἐν ὕλῃ, παθητικά. τὴν μὲν γὰρ ὕλην λέγομεν ὁμοίως ὡς εἰπεῖν τὴν αὐτὴν εἶναι τῶν ἀντικειμένων ὁποτερουοῦν, ὥσπερ γένος ὄν, τὸ δὲ δυνάμενον θερμὸν εἶναι παρόντος τοῦ θερμαντικοῦ καὶ πλησιάζοντος ἀνάγκη
10 θερμαίνεσθαι· διό, καθάπερ εἴρηται, τὰ μὲν τῶν ποιητικῶν ἀπαθῆ τὰ δὲ παθητικά. καὶ ὥσπερ ἐπὶ κινήσεως, τὸν αὐτὸν ἔχει τρόπον καὶ ἐπὶ τῶν ποιητικῶν· ἐκεῖ τε γὰρ τὸ πρῶτως κινοῦν ἀκίνητον, καὶ ἐπὶ τῶν ποιητικῶν τὸ πρῶτον ποιοῦν ἀπαθές. ἔστι δὲ τὸ ποιητικὸν αἴτιον ὡς ὅθεν ἡ ἀρχὴ τῆς
15 κινήσεως. τὸ δ' οὐ ἔνεκα οὐ ποιητικόν (διὸ ἡ ὑγίεια οὐ ποιητικόν, εἰ μὴ κατὰ μεταφοράν)· καὶ γὰρ τοῦ μὲν ποιοῦντος ὅταν ὑπάρχῃ, γίνεται τι τὸ πάσχον, τῶν δ' ἕξεων παρουσῶν οὐκέτι γίνεται, ἀλλ' ἔστιν ἡδῇ· τὰ δ' εἶδη καὶ τὰ τέλη ἕξεις τινές.

^a Of which the two opposites are species.

^b Such as "health" or "disease."

COMING-TO-BE AND PASSING-AWAY, I. 7

the first agent being unaffected, but the last agent is itself also affected. For those things which have not the same matter act without being themselves affected (for example, the art of the physician which, while it causes health, is not itself acted upon by that which is being healed), but food, while it acts, is itself all somehow acted upon, for, while it acts, it is at the same time being heated or cooled or affected in some other way. Now the art of the physician is, as it were, an original source, while the food is, as it were, the final mover and in contact with that which is moved.

Of the things, then, which are capable of acting, those of which the form does not consist in matter are not affected, but those of which the form consists in matter are liable to be affected; for we say that the matter of either of the two opposed things alike is the same, so to speak, being, as it were, a kind ^a; and that which is capable of being hot must become hot, if that which is capable of heating is present and near to it. Therefore, as has been said, some of the active agencies are unaffected, while others are liable to be acted upon; and what holds good of motion is also true of the active agencies; for as in motion the first mover is unmoved, so among active agencies the first agent is unaffected. The active agency is a cause, as being the source from which the origin of the movement comes, but the end in view is not "active" (hence health is not active, except metaphorically); for, when the agent is present, the patient becomes something, but when "states" ^b are present, the patient no longer "becomes" but already "is," and the "forms," that is the "ends," are a kind of "state," but the matter, *qua* matter,

324 b

ἡ δ' ὕλη ἢ ὕλη παθητικόν. τὸ μὲν οὖν πῦρ ἔχει ἐν
 20 ὕλῃ τὸ θερμόν· εἰ δέ τι εἶη θερμόν χωριστόν, τοῦτο
 οὐδέν ἂν πάσχοι. τοῦτο μὲν οὖν ἴσως ἀδύνατον
 εἶναι χωριστόν· εἰ δ' ἐστὶν ἓνια τοιαῦτα, ἐπ' ἐκεί-
 νων ἂν εἶη τὸ λεγόμενον ἀληθές. τί μὲν οὖν τὸ
 ποιεῖν καὶ πάσχειν ἐστὶ καὶ τίσιν ὑπάρχει καὶ διὰ
 τί καὶ πῶς, διωρίσθω τοῦτον τὸν τρόπον.

25 8. Πῶς δὲ ἐνδέχεται τοῦτο συμβαίνειν, πάλιν
 λέγωμεν. τοῖς μὲν οὖν δοκεῖ πάσχειν ἕκαστον διὰ
 τινων πόρων εἰσιόντος τοῦ ποιούντος ἐσχάτου καὶ
 κυριωτάτου, καὶ τοῦτον τὸν τρόπον καὶ ὁρᾶν καὶ
 ἀκούειν ἡμᾶς φασὶ καὶ τὰς ἄλλας αἰσθήσεις αἰσθά-
 νεσθαι πάσας, ἔτι δὲ ὁρᾶσθαι διὰ τε ἀέρος καὶ ὕδα-
 30 τος καὶ τῶν διαφανῶν, διὰ τὸ πόρους ἔχειν ἀοράτους
 μὲν διὰ μικρότητα, πυκνοὺς δὲ καὶ κατὰ στοῖχον,
 καὶ μᾶλλον ἔχειν τὰ διαφανῇ μᾶλλον.

Οἱ μὲν οὖν ἐπὶ τινων οὕτω διώρισαν, ὥσπερ
 καὶ Ἐμπεδοκλῆς, οὐ μόνον ἐπὶ τῶν ποιούντων
 καὶ πασχόντων, ἀλλὰ καὶ μίγνυσθαι φασιν ὅσων
 35 οἱ πόροι σύμμετροι πρὸς ἀλλήλους εἰσίν· ὁδῶ
 325 a δὲ μάλιστα καὶ περὶ πάντων ἐνὶ λόγῳ διωρί-
 κασι Λεύκιππος καὶ Δημόκριτος, ἀρχὴν ποιησά-
 μενοι κατὰ φύσιν ἥπερ ἐστίν. ἐνίοις γὰρ τῶν
 ἀρχαίων ἔδοξε τὸ ὄν ἐξ ἀνάγκης ἐν εἶναι καὶ
 ἀκίνητον· τὸ μὲν γὰρ κενὸν οὐκ ὄν, κινήθησθαι δ'
 5 οὐκ ἂν δύνασθαι μὴ ὄντος κενοῦ κεχωρισμένου,
 οὐδ' αὖ πολλά εἶναι μὴ ὄντος τοῦ διείργοντος.

^a Namely, Parmenides and Melissus.

COMING-TO-BE AND PASSING-AWAY, I. 7-8

is passive. Now fire holds the heat embodied in matter : but, if there were such a thing as " the hot " apart from matter, it could not be acted upon at all. Heat, therefore, perhaps cannot exist separately ; but, if there are any such separate existences, what we are saying would be true of them also. Let this, then, be our explanation of " action " and " passion," and when they exist, and why and how.

8. Let us now go back and discuss how it is possible for action and passion to occur. Some people hold that each patient is acted upon when the last agent—the agent in the strictest sense—enters in through certain pores, and they say that it is in this way that we also see and hear and employ our other senses. Furthermore, they say that things are seen through air and water and the other transparent bodies, because they have pores, which, owing to their minuteness, are invisible, but are set close together and in rows, and are more transparent the closer together and in more serried array they are.

How do
" action "
and
" passion "
occur ?

Some philosophers (including Empedocles) held this theory as regards certain bodies, not confining it to those which act and are acted upon ; but mixture also, they assert, takes place only between bodies whose pores are symmetrical with one another. The most methodical theory, however, and the one of most general application has been that enunciated by Leucippus and Democritus, taking what is the natural starting-point. For some of the ancient thinkers^a held that " what is " must necessarily be one and immovable ; for they argued that the void does not exist, but that, if there is not a void existing separately, " what is " could not be moved ; nor, again, could there be a multiplicity of things, since

The
" pores "
theory of
Empedocles.

325 a

τοῦτο δ' οὐδὲν διαφέρειν, εἴ τις οἶεται μὴ συνεχὲς εἶναι τὸ πᾶν ἀλλ' ἄπτεσθαι διηρημένον, τοῦ φάναι πολλὰ καὶ μὴ ἓν εἶναι καὶ κενόν. εἰ μὲν γὰρ πάντῃ διαιρετόν, οὐδὲν εἶναι ἓν, ὥστε οὐδὲ πολλά, ἀλλὰ
 10 κενὸν τὸ ὅλον· εἰ δὲ τῇ μὲν τῇ δὲ μὴ, πεπλασμένῳ τινὶ τοῦτ' εὐοικέαι· μέχρι πόσου γὰρ καὶ διὰ τί τὸ μὲν οὕτως ἔχει τοῦ ὅλου καὶ πλήρὲς ἐστι, τὸ δὲ διηρημένον; ἔτι ὁμοίως φάναι ἀναγκαῖον μὴ εἶναι κίνησιν. ἐκ μὲν οὖν τούτων τῶν λόγων, ὑπερβάντες τὴν αἴσθησιν καὶ παριδόντες αὐτὴν ὡς
 15 τῷ λόγῳ δέον ἀκολουθεῖν, ἓν καὶ ἀκίνητον τὸ πᾶν εἶναί φασι, καὶ ἄπειρον ἔνιοι· τὸ γὰρ πέρασ περι- αίνειν ἂν πρὸς τὸ κενόν. οἱ μὲν οὖν οὕτως καὶ διὰ ταύτας τὰς αἰτίας ἀπεφάνησαν περὶ τῆς ἀλη-
 20 θείας· ἔτι δὲ ἐπὶ μὲν τῶν λόγων δοκεῖ ταῦτα συμβαίνειν, ἐπὶ δὲ τῶν πραγμάτων μανία παραπλήσιον εἶναι τὸ δοξάζειν οὕτως· οὐδένα γὰρ τῶν μαινο-
 μένων ἐξεστάναι τοσοῦτον ὥστε τὸ πῦρ ἓν εἶναι δοκεῖν καὶ τὸν κρύσταλλον, ἀλλὰ μόνον τὰ καλὰ καὶ τὰ φαινόμενα διὰ συνήθειαν, ταῦτ' ἐνίοις διὰ τὴν μανίαν οὐδὲν δοκεῖ διαφέρειν.

Λεύκιππος δ' ἔχειν ὥρθη λόγους οἵτινες πρὸς τὴν αἴσθησιν ὁμολογούμενα λέγοντες οὐκ ἀναιρήσουσιν
 25 οὔτε γένεσιν οὔτε φθορὰν οὔτε κίνησιν καὶ τὸ πλήθος τῶν ὄντων. ὁμολογήσας δὲ ταῦτα μὲν τοῖς φαινο-
 μένοις, τοῖς δὲ τὸ ἓν κατασκευάζουσιν ὡς οὐκ¹ ἂν

¹ οὐκ E : οὔτε FHJL.^a i.e. the Monists.

COMING-TO-BE AND PASSING-AWAY, I. 8

there is nothing which keeps them apart ; and they declare that, if one holds that the universe is not continuous but maintains contact in separation, this does not differ from saying that things are " many " (and not " one ") and that there is a void. For if the universe is divisible throughout, there is no " one," and therefore no " many," but the whole is void ; but to suppose that it is divisible at one point but not at another seems like a baseless invention. For how far is it divisible ? And why is part of the whole indivisible and a *plenum*, and part divided ? Moreover, they say that it is equally necessary to deny the existence of motion. As a result, then, of these arguments, going beyond and disregarding sense-perception, on the plea that they ought to follow reason, they assert that the universe is one and immovable ; some add that it is infinite as well, for the limit would be a limit against the void. Some philosophers, then, set forth their views about the truth in this manner and based them on these grounds. Furthermore, though these opinions seem to follow logically from the arguments, yet, in view of the facts, to hold them seems almost madness ; for no madman is so out of his senses as to hold that fire and ice are " one " ; it is only between things which *are* good and things which, through habit, *seem* to be good, that some people, in their madness, see no difference.

Leucippus, however, thought that he had arguments, which, while agreeing with sense-perception, would not do away with coming-to-be and passing-away, or motion, or the multiplicity of things which are. While making these concessions to things as they appear, and conceding to those who postulate the oneness of things ^a that there could not be motion

The
" atoms and
void "
theory of
Leucippus
and Demo-
critus.

325 a

κίνησιν οὐσαν ἄνευ κενοῦ τό τε κενὸν μὴ ὄν, καὶ τοῦ
 ὄντος οὐδὲν μὴ ὄν φησιν εἶναι. τὸ γὰρ κυρίως ὄν
 παμπληθὲς ὄν· ἀλλ' εἶναι τὸ τοιοῦτον οὐχ ἓν, ἀλλ'
 30 ἅπειρα τὸ πλήθος καὶ ἀόρατα διὰ σμικρότητα τῶν
 ὄγκων. ταῦτα δ' ἐν τῷ κενῷ φέρεσθαι (κενὸν γὰρ
 εἶναι), καὶ συνιστάμενα μὲν γένεσιν ποιεῖν, δια-
 λυόμενα δὲ φθοράν. ποιεῖν δὲ καὶ πάσχειν ἥ τυγ-
 χάνουσιν ἀπτόμενα (ταύτη γὰρ οὐχ ἓν εἶναι), καὶ
 35 συντιθέμενα δὲ καὶ περιπλεκόμενα γεννᾶν· ἐκ δὲ
 τοῦ κατ' ἀλήθειαν ἑνὸς οὐκ ἂν γενέσθαι πλήθος, οὐδ'
 ἐκ τῶν ἀληθῶς πολλῶν ἓν, ἀλλ' εἶναι τοῦτ' ἀδύνα-
 325 b τον, ἀλλ' ὥσπερ Ἐμπεδοκλῆς καὶ τῶν ἄλλων τινές
 φασι πάσχειν διὰ πόρων, οὕτω πᾶσαν ἀλλοίωσιν
 καὶ πᾶν τὸ πάσχειν τοῦτον γίνεσθαι τὸν τρόπον, διὰ
 τοῦ κενοῦ γινομένης τῆς διαλύσεως καὶ τῆς φθο-
 5 ρᾶς, ὁμοίως δὲ καὶ τῆς αὐξήσεως, ὑπείσδυομένων
 στερεῶν.

Σχεδὸν δὲ καὶ Ἐμπεδοκλεῖ ἀναγκαῖον λέγειν,
 ὥσπερ καὶ Λεύκιππός φησιν· εἶναι γὰρ ἅττα στερεά,
 ἀδιαίρετα δέ, εἰ μὴ πάντῃ πόροι συνεχεῖς εἰσίν.
 τοῦτο δ' ἀδύνατον· οὐδὲν γὰρ ἔσται ἕτερον στερεὸν
 παρὰ τοὺς πόρους, ἀλλὰ πᾶν κενόν. ἀνάγκη ἄρα
 10 τὰ μὲν ἀπτόμενα εἶναι ἀδιαίρετα, τὰ δὲ μεταξὺ
 αὐτῶν κενά, οὓς ἐκεῖνος λέγει πόρους. οὕτως δὲ
 καὶ Λεύκιππος λέγει περὶ τοῦ ποιεῖν καὶ πάσχειν.

Οἱ μὲν οὖν τρόποι καθ' οὓς τὰ μὲν ποιεῖ τὰ δὲ
 πάσχει, σχεδὸν οὗτοι λέγονται· καὶ περὶ μὲν τού-
 240

COMING-TO-BE AND PASSING-AWAY, I. 8

without a void, he declares that the void is "not being," and nothing of "what is" is "not being"; for "what is" in the strictest sense is a complete *plenum*. "But this '*plenum*,'" he says, "is not one but many things of infinite number, and invisible owing to the minuteness of their bulk. These are carried along in the void (for there *is* a void) and, when they come together, they cause coming-to-be and, when they dissolve, they cause passing-away. They act and are acted upon where they happen to come into contact (for there they are not one), and they generate when they are placed together and intertwined. But from that which is truly one, a multiplicity could never come-into-being, nor a one from the truly many; but this is impossible. But" (just as Empedocles and some of the other philosophers say that things are acted upon through their pores) "all 'alteration' and all 'passion' occur in this way, dissolution and passing-away taking place by means of the void, and likewise also growth, when solids creep into the voids."

Empedocles, too, is almost compelled to take the same view as Leucippus; for he says that there are certain solids, but they are indivisible, unless there are continuous pores throughout. But this is impossible; for then there will be nothing solid except the pores, but the whole will be void. It necessarily follows, therefore, that those things which are in contact are indivisible, but the spaces between them, which he calls pores, must be void. This is also Leucippus' view about "action" and "passion."

These, then, are, roughly speaking, the accounts given of the way in which some things "act" and other things are "acted upon." As regards this

των, καὶ πῶς λέγουσι, δῆλον, καὶ πρὸς τὰς αὐτῶν
 15 θέσεις αἷς χρῶνται σχεδὸν ὁμολογουμένως φαίνε-
 ται συμβαῖνον. τοῖς δ' ἄλλοις ἦττον, οἷον Ἐμπε-
 δοκλεῖ τίνα τρόπον ἔσται γένεσις καὶ φθορὰ καὶ
 ἀλλοιώσεις, οὐ δῆλον. τοῖς μὲν γάρ ἐστιν ἀδιαίρετα
 τὰ πρῶτα τῶν σωμάτων, σχήματι διαφέροντα
 μόνον, ἐξ ὧν πρῶτων σύγκειται καὶ εἰς ἃ ἔσχατα
 20 διαλύεται. Ἐμπεδοκλεῖ δὲ τὰ μὲν ἄλλα φανερόν
 ὅτι μέχρι τῶν στοιχείων ἔχει τὴν γένεσιν καὶ τὴν
 φθοράν, αὐτῶν δὲ τούτων πῶς γίνεται καὶ φθεί-
 ρεται τὸ σωρευόμενον μέγεθος, οὔτε δῆλον οὔτε
 ἐνδέχεται λέγειν αὐτῷ μὴ λέγοντι καὶ τοῦ πυρὸς
 εἶναι στοιχεῖον, ὁμοίως δὲ καὶ τῶν ἄλλων ἀπάντων,
 25 ὥσπερ ἐν τῷ Τιμαίῳ γέγραφε Πλάτων· τοσοῦτον
 γὰρ διαφέρει τοῦ μὴ τὸν αὐτὸν τρόπον Λευκίπῳ
 λέγειν, ὅτι ὁ μὲν στερεὰ ὁ δ' ἐπίπεδα λέγει τὰ
 ἀδιαίρετα, καὶ ὁ μὲν ἀπείροις ὠρίσθαι σχήμασι
 [τῶν ἀδιαιρέτων στερεῶν ἕκαστον], ὁ δὲ ὠρισμένοις,
 ἐπεὶ ἀδιαίρετά γε ἀμφοτέρωι λέγουσι καὶ ὠρισμένα
 30 σχήμασιν. ἐκ δὲ τούτων αἱ γενέσεις καὶ αἱ δια-
 κρίσεις Λευκίπῳ μὲν [δύο τρόποι ἂν εἶεν,] διὰ τε
 τοῦ κενοῦ καὶ διὰ τῆς ἀφῆς (ταύτῃ γὰρ διαιρετὸν
 ἕκαστον), Πλάτῳ δὲ κατὰ τὴν ἀφήν μόνον· κενὸν
 γὰρ οὐκ εἶναί φησιν.

Καὶ περὶ μὲν τῶν ἀδιαιρέτων ἐπιπέδων εἰρή-
 καμεν ἐν τοῖς πρότερον λόγοις· περὶ δὲ τῶν ἀδι-
 35 αιρέτων στερεῶν τὸ μὲν ἐπὶ πλεόν θεωρῆσαι τὸ

^a i.e. Leucippus and the other Atomists.

^b i.e. the Atomists.

school,^a it is obvious what their views are and how they state them, and they are clearly more or less consistent with the suppositions which they adopt. This is less clearly the case with the other school; for example, it is not clear how, in the view of Empedocles, there are to be coming-to-be and passing-away and "alteration." For to the other school^b the primary bodies, from which originally bodies are composed and into which ultimately they are dissolved, are indivisible, differing only in structure; but to Empedocles, it is clear that all the other bodies, down to the elements, have their coming-to-be and passing-away, but it is not evident how the accumulated mass of the elements themselves comes-to-be and passes-away; nor is it possible for him to give an explanation without asserting that there is also an element of fire and likewise of all the other kinds, as Plato has stated in the *Timæus*.^c For Plato is so far from giving the same account as Leucippus that, while both of them declare that the elementary constituents are indivisible and determined of figures, (a) Leucippus holds that the indivisibles are solid, Plato that they are planes, and (b) Leucippus declares that they are determined by an infinite number of figures, Plato by a definite number. It is from these indivisibles that the comings-to-be and dissolutions result: according to Leucippus, through the void and through the contact (for it is at the point of contact that each body is divisible); according to Plato, as a result of contact only, for he denies that a void exists.

Plato's
view com-
pared with
that of
Leucippus.

Now we have dealt with indivisible planes in earlier discussions^d; but with regard to indivisible solids, let us leave for the moment further discussion

Neither the
theory of
Empedocles
nor that

^c 53 A ff.

^d *De Caelo* 298 b 33 ff.

325 b

συμβαῖνον ἀφείσθω τὸ νῦν, ὥς δὲ μικρὸν παρεκ-
 326 a βᾶσιν εἰπεῖν, ἀναγκαῖον ἀπαθές τε ἕκαστον λέγειν
 τῶν ἀδιαιρέτων (οὐ γὰρ οἶόν τε πάσχειν ἄλλ' ἢ
 διὰ τοῦ κενοῦ) καὶ μηδενὸς ποιητικὸν πάθους· οὔτε
 γὰρ ψυχρὸν οὔτε σκληρὸν οἶόν τ' εἶναι. καίτοι
 τοῦτό γε ἄτοπον, τὸ μόνον ἀποδοῦναι τῷ περι-
 5 φερεῖ σχήματι τὸ θερμόν· ἀνάγκη γὰρ καὶ τοῦναν-
 τίον τὸ ψυχρὸν ἄλλω τινὶ προσήκειν τῶν σχημάτων.
 ἄτοπον δὲ καὶ εἰ ταῦτα μὲν ὑπάρχει, λέγω δὲ
 θερμότης καὶ ψυχρότης, βαρύτης δὲ καὶ κουφότης
 καὶ σκληρότης καὶ μαλακότης μὴ ὑπάρξει· καίτοι
 βαρύτερόν γε κατὰ τὴν ὑπεροχὴν φησιν εἶναι
 10 Δημόκριτος ἕκαστον τῶν ἀδιαιρέτων, ὥστε δῆλον
 ὅτι καὶ θερμότερον. τοιαῦτα δ' ὄντα μὴ πάσχειν
 ὑπ' ἀλλήλων ἀδύνατον, οἶον ὑπὸ τοῦ πολὺ ὑπερ-
 βάλλοντος θερμοῦ τὸ ἡρέμα θερμόν. ἀλλὰ μὴν
 εἰ σκληρόν, καὶ μαλακόν. τὸ δὲ μαλακὸν ἤδη τῷ
 πάσχειν τι λέγεται· τὸ γὰρ ὑπεικτικὸν μαλακόν.
 15 ἀλλὰ μὴν ἄτοπον καὶ εἰ μηδὲν ὑπάρχει ἄλλ' ἢ
 μόνον σχῆμα· καὶ εἰ ὑπάρχει, ἐν δὲ μόνον, οἶον τὸ
 μὲν ψυχρὸν τὸ δὲ θερμόν· οὐδὲ γὰρ ἂν μία τις εἴη
 ἢ φύσις αὐτῶν. ὁμοίως δὲ ἀδύνατον καὶ εἰ πλείω
 τῷ ἐνὶ ἀδιαίρετον γὰρ ὃν ἐν τῷ αὐτῷ ἔξει τὰ πάθη,
 20 ὥστε καὶ ἐὰν πάσχη εἴπερ ψύχεται, ταύτῃ τι¹
 καὶ ἄλλο ποιήσει ἢ πείσεται. τὸν αὐτὸν δὲ τρόπον
 καὶ ἐπὶ τῶν ἄλλων παθημάτων· τοῦτο γὰρ καὶ

¹ ταύτῃ τι J : ταύτῃ τι E.L. : ταύτῃ τοι F : ταῦτο τι H.

^a i.e. of the Atomists.

of what they involve and deal with them in a short digression. It is a necessary part of the theory ^a that each "indivisible" is incapable of being acted upon (for it cannot be acted upon except through the void) and incapable of producing an effect on anything else; for it cannot be either cold or hard. Yet it is certainly strange that heat can only be attributed to the spherical figure; for then it necessarily follows that its contrary, cold, must belong to another of the figures. It is also strange if these properties, I mean heat and cold, belong to the indivisibles, while heaviness and lightness and hardness and softness are not going to belong. Yet Democritus says that the more each of the indivisibles exceeds, the heavier it is, so that clearly it is also hotter. Being of this kind, it is impossible that the indivisibles should not be acted upon by one another, for example, the slightly hot should be acted upon by what far surpasses it in heat. Again, if an indivisible can be hard, it can also be soft; and the soft is always so-called because it can be acted upon; for that which yields to pressure is soft. But, further, it is strange that no property except figure should attach to the indivisible; and that, if properties do attach to them, only one should attach to each, *e.g.* that one "indivisible" should be cold and another hot; for, then, neither would their substance be uniform. It is equally impossible, too, that more than one property should belong to one indivisible, for, being indivisible, it will possess these properties in the same place; so that if it is acted upon by being chilled, it will also, in this way, act or be acted upon in some other way. And similarly with the other properties also; for this problem also confronts in

of the
Atomists
can account
for "action-
and-
passion."

326 a

τοῖς στερεὰ καὶ τοῖς ἐπίπεδα λέγουσιν ἀδιαίρετα
 συμβαίνει τὸν αὐτὸν τρόπον· οὔτε γὰρ μανότερα
 οὔτε πυκνότερα οἷόν τε γίνεσθαι κενοῦ μὴ ὄντος
 25 ἐν τοῖς ἀδιαίρετοις. ἔτι δ' ἄτοπον καὶ τὸ μικρὰ
 μὲν ἀδιαίρετα εἶναι, μεγάλα δὲ μή· νῦν μὲν γὰρ
 εὐλόγως τὰ μείζω θραύεται μᾶλλον τῶν μικρῶν· τὰ
 μὲν γὰρ διαλύεται ῥαδίως, οἷον τὰ μεγάλα· προσ-
 κόπτει γὰρ πολλοῖς· τὸ δὲ ἀδιαίρετον ὅλως διὰ
 τί μᾶλλον ὑπάρχει τῶν μεγάλων τοῖς μικροῖς; ἔτι
 30 δὲ πότερον μία πάντων ἢ φύσις ἐκείνων τῶν
 στερεῶν, ἢ διαφέρει θάτερα τῶν ἐτέρων, ὥσπερ
 ἂν εἰ τὰ μὲν εἴη πύρινα, τὰ δὲ γήινα τὸν ὄγκον;
 εἰ μὲν γὰρ μία φύσις ἐστὶν ἀπάντων, τί τὸ χωρί-
 σαν; ἢ διὰ τί οὐ γίνεται ἀψάμενα ἓν, ὥσπερ
 ὕδωρ ὕδατος ὅταν θίγῃ; οὐδὲν γὰρ διαφέρει τὸ ὕσ-
 35 τερον τοῦ προτέρου. εἰ δ' ἕτερα, ποῖα ταῦτα; καὶ
 326 b δῆλον ὡς ταῦτα θετέον ἀρχὰς καὶ αἰτίας τῶν συμ-
 βαίνοντων μᾶλλον ἢ τὰ σχήματα. ἔτι δὲ διαφέ-
 ροντα τὴν φύσιν, καὶ ποιῇ καὶ πάσχηθιγγάνοντα
 ἀλλήλων. ἔτι δὲ τί τὸ κινεῖν; εἰ μὲν γὰρ ἕτερον,
 παθητικά¹. εἰ δ' αὐτὸ αὐτὸ ἕκαστον, ἢ διαιρετὸν
 5 ἔσται, κατ' ἄλλο μὲν κινεῖν κατ' ἄλλο δὲ κινου-
 μενον, ἢ κατὰ ταῦτὸ τὰναντία ὑπάρξει, καὶ ἡ ὕλη
 οὐ μόνον ἀριθμῶ ἔσται μία ἀλλὰ καὶ δυνάμει.

“Οσοι μὲν οὖν διὰ τῆς τῶν πόρων κινήσεώς φασι

¹ παθητικά EHL: -όν F.

* See *Phys.* 190 b 24, 192 a 1 ff.

the same way both those who assert that "indivisibles" are solid and those who say they are planes, for they cannot become either rarer or denser, because there can be no void in the "indivisibles." Further, it is strange that there should be small "indivisibles" but not large ones; for it is natural to suppose at this stage that the larger bodies are more liable to be shattered than the small, for the former, like large things in general, are easily dissolved, since they come into collision with many other bodies. But why should indivisibility in general attach to small things rather than large? Furthermore, is the substance of all these solids uniform or does it differ in different groups, as if, for example, some were fiery and some earthy in their bulk? For if they are all of one substance, what has separated them from one another? Or why do they not become one when they come into contact, just as water does when it touches water? For there is no difference between the two cases. But if they belong to different classes, what are their different qualities? Indeed it is clear that we ought to postulate that these classes rather than the "figures" are the origins and causes of the resulting phenomena. Moreover, if they were different in substance they would act and be acted upon reciprocally if they touched one another. Again, what sets these in motion? For if it is something other than themselves, they must be liable to be acted upon; but, if each is its own mover either it will be divisible, in part causing motion and in part being moved, or contraries will belong to it in the same respect, and the matter of it will be not only arithmetically but also potentially one.^a

As for those who say that the processes of being

τὰ πάθη συμβαίνειν, εἰ μὲν καὶ πεπληρωμένων
 τῶν πόρων, περίεργον οἱ πόροι· εἰ γὰρ ταύτῃ τι
 10 πᾶσχει τὸ πᾶν, καὶ μὴ πόρους ἔχον ἀλλ' αὐτὸ
 συνεχές ὃν πᾶσχοι τὸν αὐτὸν τρόπον. ἔτι δὲ πῶς
 ἐνδέχεται περὶ τοῦ διορᾶν συμβαίνειν ὥς λέγουσιν;
 οὔτε γὰρ κατὰ τὰς ἀφὰς ἐνδέχεται διέναι διὰ τῶν
 διαφανῶν, οὔτε διὰ τῶν πόρων, εἰ πλήρης ἕκαστος·
 τί γὰρ διοίσει τοῦ μὴ ἔχειν πόρους; πᾶν γὰρ
 15 ὁμοίως ἔσται πλήρες. ἀλλὰ μὴν εἰ καὶ κενὰ μὲν
 ταῦτα (ἀνάγκη δὲ σώματα ἐν αὐτοῖς ἔχειν), ταῦτό
 συμβήσεται πάλιν. εἰ δὲ τηλικαῦτα τὸ μέγεθος
 ὥστε μὴ δέχεσθαι σῶμα μηδέν, γελοῖον τὸ μικρὸν
 μὲν οἶεσθαι κενὸν εἶναι, μέγα δὲ μὴ μὴδ' ὀπηλι-
 κονοῦν, ἢ τὸ κενὸν ἄλλο τι οἶεσθαι λέγειν πλήν
 20 χώραν σώματος, ὥστε δῆλον ὅτι παντὶ σώματι τὸν
 ὄγκον ἴσον ἔσται κενόν.

“Ὅλως δὲ τὸ πόρους ποιεῖν περίεργον· εἰ μὲν γὰρ
 μηδέν ποιεῖ κατὰ τὴν ἀφήν, οὐδὲ διὰ τῶν πόρων
 ποιήσῃ διόν· εἰ δὲ τῷ ἄπτεσθαι, καὶ μὴ πόρων
 ὄντων τὰ μὲν πείσεται τὰ δὲ ποιήσῃ τῶν πρὸς
 25 ἄλληλα τοῦτον τὸν τρόπον πεφυκότων. ὅτι μὲν
 οὖν οὕτως λέγειν τοὺς πόρους ὥς τινες ὑπολαμ-
 βάνουσιν, ἢ ψεῦδος ἢ μάταιον, φανερόν ἐκ τούτων
 ἐστίν· διαιρετῶν δ' ὄντων πάντῃ τῶν σωμάτων
 πόρους ποιεῖν γελοῖον· ἢ γὰρ διαιρετά, δύναται
 χωρίζεσθαι.

^a i.e. the body is none the less impenetrable, even if it is held that the pores, though they contain bodies, are themselves, *qua* pores, empty channels.

^b i.e. the very fact that a body is everywhere divisible makes it possible to open up a channel in it.

acted upon occur through movement in the pores, if this happens although the pores are filled, the pores are an unnecessary supposition ; for if the whole body is acted upon at all in this way, it would be acted upon in the same way even if it had no pores, in its own continuous self. Again, how is it possible to carry out the process of seeing through a medium as they describe it ? For it is not possible to penetrate through the transparent bodies either at the points of contact or through the pores, if each pore is full. For how will this condition differ from the possession of no pores at all ? For the whole will be equally full throughout. Furthermore, if these channels, though they must contain bodies, are void, the same result will occur again ^a ; but if they are of such a size that they cannot admit any body, it is absurd to suppose that there is a small void but not a big one, of whatever size it be, or to think that " a void " means anything except a space for a body ; so that it is clear that there will be a void equal in cubic capacity to every body.

In general, then, it is superfluous to postulate the existence of pores ; for if the agent effects nothing by contact, neither will it effect anything by passing through pores. If, however, it effects anything by contact, then, even without there being any pores, some of those things which are by nature adapted for reciprocal effect of this kind will be acted upon, while others will act. It is clear, therefore, from what we have said that it is either false or useless to talk of pores of the kind which some people suppose to exist, and, since bodies are everywhere divisible, it is ridiculous to postulate pores at all ; for since bodies are divisible, they can be separated into parts. ^b

9. Τίνα δὲ τρόπον ὑπάρχει τοῖς οὖσι γεννᾶν καὶ
 30 ποιεῖν καὶ πάσχειν, λέγωμεν λαβόντες ἀρχὴν τὴν
 πολλάκις εἰρημένην. εἰ γὰρ ἐστὶ τὸ μὲν δυνάμει
 τὸ δ' ἐντελεχείᾳ τοιοῦτον, πέφυκεν οὐ τῇ μὲν τῇ
 δ' οὐ πάσχειν, ἀλλὰ πάντῃ καθ' ὅσον ἐστὶ τοιοῦτον,
 ἦττον δὲ καὶ μᾶλλον ἢ τοιοῦτον μᾶλλον ἐστὶ καὶ
 ἦττον· καὶ ταύτῃ πόρους ἂν τις λέγοι μᾶλλον,
 35 καθάπερ ἐν τοῖς μεταλλευομένοις διατείνουσι τοῦ
 327 a παθητικοῦ φλέβες συνεχεῖς. συμφυῆς μὲν οὖν ἕκα-
 στον καὶ ἐν ὃν ἀπαθές. ὁμοίως δὲ καὶ μὴ θιγγά-
 νοντα μήτε αὐτῶν μήτ' ἄλλων, ἃ ποιεῖν πέφυκε
 καὶ πάσχειν. λέγω δ' οἶον οὐ μόνον ἀπτόμενον
 θερμαίνει τὸ πῦρ, ἀλλὰ καὶ ἀποθεν ἦ· τὸν μὲν γὰρ
 5 ἀέρα τὸ πῦρ, ὃ δ' ἀὴρ τὸ σῶμα θερμαίνει, πεφυκῶς
 ποιεῖν καὶ πάσχειν. τὸ δὲ τῇ μὲν οἶσθαι πάσχειν
 τῇ δὲ μή, διορίσαντας ἐν ἀρχῇ τοῦτο λεκτέον. εἰ
 μὲν γὰρ μὴ πάντῃ διαιρετὸν τὸ μέγεθος, ἀλλ' ἔστι
 σῶμα ἀδιαίρετον ἢ πλάτος, οὐκ ἂν εἴη πάντῃ
 10 παθητικόν, ἀλλ' οὐδὲ συνεχὲς οὐδέν· εἰ δὲ τοῦτο
 ψεῦδος καὶ πᾶν σῶμα διαιρετόν, οὐδὲν διαφέρει
 διηρηθῆναι μὲν ἄπτεσθαι δέ, ἢ διαιρετόν εἶναι· εἰ
 γὰρ διακρίνεσθαι δύναται κατὰ τὰς ἀφάς, ὥσπερ
 φασί τινες, καὶ μήπω ἢ διηρημένον, ἔσται διηρη-

^a It is difficult to extract any meaning from this sentence as it stands. Joachim supposes a lacuna after τῇ δὲ μή.

9. Let us now deal with the question about the way in which existences have the power of generating and of acting and being acted upon, starting from the principle which we have often enunciated. For if there exists that which is potentially of a certain kind as well as that which is actually so, it is of a nature, in so far as it is what it is, to be acted upon in every part, and not in some part but not in another, and to a more or a less extent according as it is more or less of that particular nature ; and one might speak of pores as having a particular nature in a greater degree, just as there are veins of substance which can be acted upon which stretch continuously in metals which are being mined. Every body, then, which is coherent and one is not acted upon ; and this is equally true of bodies which do not touch either each other or other bodies which are of a nature to act or be acted upon. Fire is an example of what I mean : it heats not only when it is in contact with something, but also if it is at a distance ; for it heats the air, and the air heats the body, being of a nature both to act and to be acted upon. But having enunciated the theory that a body is acted upon in one part but not in another, we must first make the following declaration ^a : if the magnitude is not everywhere divisible, but there is a divisible body or plane, no body would be liable to be acted upon throughout, but neither would any body be continuous ; but, if this is not true and every body is divisible, there is no difference between “ having been divided but being in contact ” and “ being divisible ” ; for if it is possible for a body to be “ separated at the points of contact ”—a phrase which some people use—then, even if it has not yet been divided,

Aristotle's
explanation
of “ action-
and-pas-
sion.”

327 a

μένον· δυνατόν γὰρ διαιρεθῆναι· γίνεται γὰρ οὐδὲν
 15 ἀδύνατον. ὅλως δὲ τὸ τοῦτον γίνεσθαι τὸν τρόπον
 σχιζομένων τῶν σωμάτων ἄτοπον· ἀναιρεῖ γὰρ οὐ-
 τος ὁ λόγος ἀλλοίωσιν, ὀρώμεν δὲ τὸ αὐτὸ σῶμα
 συνεχές ὃν ὅτε μὲν ὑγρὸν ὅτε δὲ πεπηγός, οὐ διαι-
 ρέσει καὶ συνθέσει τοῦτο παθόν, οὐδὲ τροπῇ καὶ
 διαθιγῇ, καθάπερ λέγει Δημόκριτος· οὔτε γὰρ
 20 μετατεθὲν οὔτε μεταβαλὸν τὴν φύσιν πεπηγός ἐξ
 ὑγροῦ γέγονεν· οὐδ' ἐνυπάρχει τὰ σκληρὰ καὶ πε-
 πηγότα ἀδιαίρετα τοὺς ὄγκους· ἀλλ' ὁμοίως ἅπαν
 ὑγρὸν, ὅτε δὲ σκληρὸν καὶ πεπηγός ἐστιν. ἔτι
 δ' οὐδ' αὔξῃσιν οἷόν τ' εἶναι καὶ φθίσιν· οὐ γὰρ
 ὁτιοῦν ἔσται γεγονὸς μείζον, εἴπερ ἔσται πρόσθεσις,
 25 καὶ μὴ πᾶν μεταβεβληκός, ἢ μιχθέντος τινὸς ἢ
 καθ' αὐτὸ μεταβαλόντος.

“Οτι μὲν οὖν ἔστι τὸ γεννᾶν καὶ τὸ ποιεῖν καὶ τὸ
 γίνεσθαι τε καὶ πάσχειν ὑπ' ἀλλήλων, καὶ τίνα
 τρόπον ἐνδέχεται, καὶ τίνα φασὶ μὲν τινες οὐκ
 ἐνδέχεται δέ, διωρίσθω τοῦτον τὸν τρόπον.

30 10. Λοιπὸν δὲ θεωρῆσαι περὶ μίξεως κατὰ τὸν
 αὐτὸν τρόπον τῆς μεθόδου· τοῦτο γὰρ ἦν τρίτον
 τῶν προτεθέντων ἐξ ἀρχῆς. σκεπτέον δὲ τί τ'
 ἐστὶν ἢ μίξις καὶ τί τὸ μικτόν, καὶ τίσιν ὑπάρχει
 τῶν ὄντων καὶ πῶς, ἔτι δὲ πότερον ἔστι μίξις ἢ
 τοῦτο ψεῦδος· ἀδύνατον γὰρ ἐστὶ μιχθῆναί τι ἔτε-
 35 ρον ἑτέρῳ, καθάπερ λέγουσί τινες· ὄντων μὲν γὰρ
 327 b ἔτι τῶν μιχθέντων καὶ μὴ ἡλλοιωμένων οὐδὲν μάλ-

^a The other two being ἀφή (ch. 6) and ποιεῖν καὶ πάσχειν (chs. 7-9).

COMING-TO-BE AND PASSING-AWAY, I. 9-10

it will be in a condition of having been divided ; for since it *can* be divided, nothing impossible results. And, in general, it is strange that it should happen in this way only, namely, if the bodies are being split ; for this theory does away with " alteration," whereas we see the same body remaining in a state of continuity, though it is at one time liquid and at another solid, and it has not undergone this change by " division " or " composition," nor yet by " turning " and " mutual contact," as Democritus declares ; for it has not become solid instead of liquid through any change of arrangement or alteration of its substance, nor do there exist in it those hard and congealed particles which are indivisible in their bulk, but it is liquid and at another time hard and congealed uniformly throughout. Furthermore, it is also impossible for there to be growth and diminution ; for if there shall be any addition—as opposed to a change in the whole, either by the admixture of something or by a change in the body itself—no part of it will have become greater.

Let this, then, be our explanation of the way in which things generate and act and come into being and are acted upon by one another, and the manner in which these processes *can* occur and the impossible theories which some philosophers enunciate.

10. It now remains to consider " mixture " by the same kind of method ; for this is the third of the subjects originally proposed.^a We must consider what " mixture " is and what it is that can be mixed and of what things mixture is a property and how ; and, further, whether there is such a thing as mixture, or is it a fiction. For, according to some people, it is impossible for one thing to be mixed with another ; for (a) if the ingredients still exist and are not altered

The nature of " mixture " or " combination " and how it takes place.

λον νῦν μεμίχθαι φασιν ἢ πρότερον, ἀλλ' ὁμοίως ἔχειν, θατέρου δὲ φθαρέντος οὐ μεμίχθαι, ἀλλὰ τὸ μὲν εἶναι τὸ δ' οὐκ εἶναι, τὴν δὲ μίξιν ὁμοίως
 5 ἐχόντων εἶναι· τὸν αὐτὸν δὲ τρόπον καὶ εἰ ἀμφοτέρων συνελθόντων ἔφθαρται τῶν μιγνυμένων ἐκάτερον· οὐ γὰρ εἶναι μεμιγμένα τά γε ὅλως οὐκ ὄντα.

Οὗτος μὲν οὖν ὁ λόγος ἔοικε ζητεῖν διορίσαι τί διαφέρει μίξις γενέσεως καὶ φθορᾶς, καὶ τί τὸ μικτὸν τοῦ γεννητοῦ καὶ φθαρτοῦ· δῆλον γὰρ ὡς δεῖ
 10 διαφέρειν, εἴπερ ἔστιν. ὥστε τούτων ὄντων φανερώων τὰ διαπορηθέντα λύουσιν^α ἄν.

Ἀλλὰ μὴν οὐδὲ τὴν ὕλην τῷ πυρὶ μεμίχθαι φάμεν οὐδὲ μίγνυσθαι καιομένην, οὔτ' αὐτὴν αὐτῆς τοῖς μορίοις οὔτε τῷ πυρί, ἀλλὰ τὸ μὲν πῦρ γίνεσθαι, τὴν δὲ φθεῖρεσθαι. τὸν αὐτὸν δὲ τρόπον οὔτε τῷ
 15 σώματι τὴν τροφήν οὔτε τὸ σχῆμα τῷ κηρῷ μιγνύμενον σχηματίζειν τὸν ὄγκον· οὐδὲ τὸ σῶμα καὶ τὸ λευκὸν οὐδ' ὅλως τὰ πάθη καὶ τὰς ἕξεις οἷόν τε μίγνυσθαι τοῖς πράγμασιν· σωζόμενα γὰρ ὁράται. ἀλλὰ μὴν οὐδὲ τὸ λευκὸν γε καὶ τὴν ἐπιστήμην ἐνδέχεται μιχθῆναι, οὐδ' ἄλλο τῶν μὴ χωριστῶν
 20 οὐδέν. ἀλλὰ τοῦτο λέγουσιν οὐ καλῶς οἱ πάντα ποτὲ ὁμοῦ φάσκοντες εἶναι καὶ μεμίχθαι· οὐ γὰρ

^a i.e. "white" and "knowledge" cannot exist by themselves.

at all, they are no more mixed than they were before, but are in a similar state ; and (b) if one ingredient is destroyed, they have not been mixed, but one ingredient exists while the other does not, whereas mixture is composed of ingredients which remain what they were before ; and in the same way (c) even if, both the ingredients having come together, each of them has been destroyed, there is no mixture ; for things which have no existence at all cannot have been mixed.

This argument, then, seems to seek to define in what respect " mixing " differs from coming-to-be and passing-away, and how that which is " mixed " differs from that which comes-to-be and passes-away ; for obviously " mixture," if there is such a thing, must be something different. When, therefore, these questions have been cleared up, our difficulties would be solved.

Now we do not say that wood has mixed with fire nor that it mixes, when it is burning, either with its own particles or with the fire, but we say that the fire comes-to-be and the wood passes-away. Similarly we do not say that the food mixes with the body or that the shape mixes with the wax and so forms the lump. Nor can " body " and " white " be " mixed " together, nor, in general, can " properties " and " states " be mixed with " things " ; for we see them persisting unchanged. Again, " white " and " knowledge " cannot be mixed together, nor any of the terms which cannot be used separately.^a This is what is wrong in the theory of those who hold that formerly all things were together and mixed ; for selves ; a man can be " white " and " learned," but these attributes can only exist as properties of someone.

327 b

ἅπαν ἅπαντι μικτόν, ἀλλ' ὑπάρχειν δεῖ χωριστόν
 ἑκάτερον τῶν मिथέντων· τῶν δὲ παθῶν οὐδὲν
 χωριστόν. ἐπεὶ δ' ἐστὶ τὰ μὲν δυνάμει τὰ δ'
 ἐνεργείᾳ τῶν ὄντων, ἐνδέχεται τὰ मिथέντα εἶναί
 25 πως καὶ μὴ εἶναι, ἐνεργείᾳ μὲν ἑτέρου ὄντος τοῦ
 γεγονότος ἐξ αὐτῶν, δυνάμει δ' ἔτι ἑκατέρου ἅπερ
 ἦσαν πρὶν मिथῆναι, καὶ οὐκ ἀπολωλότα· τοῦτο
 γὰρ ὁ λόγος διηπόρει πρότερον· φαίνεται δὲ τὰ
 मिγνύμενα πρότερόν τε ἐκ κεχωρισμένων συνιόντα
 καὶ δυνάμενα χωρίζεσθαι πάλιν. οὔτε διαμένουσιν
 30 οὖν ἐνεργείᾳ ὥσπερ τὸ σῶμα καὶ τὸ λευκόν, οὔτε
 φθείρονται, οὔτε θάτερον οὔτ' ἄμφω· σώζεται γὰρ
 ἡ δύναμις αὐτῶν. διὸ ταῦτα μὲν ἀφείσθω· τὸ
 δὲ συνεχὲς τούτοις ἀπόρημα διαιρετέον, πότερον ἢ
 μίξις πρὸς τὴν αἴσθησιν τί ἐστίν.

Ὅταν γὰρ οὕτως εἰς μικρὰ διαιρεθῇ τὰ मिγνύ-
 35 μενα, καὶ τεθῇ παρ' ἄλληλα τοῦτον τὸν τρόπον
 ὥστε μὴ δῆλον ἕκαστον εἶναι τῇ αἰσθήσει, τότε
 328 a μέμικται ἢ οὐ, ἀλλ' ἔστιν ὥστε ὅτιοῦν παρ' ὅτι-
 οῦν εἶναι μόνον τῶν मिथέντων; λέγεται μὲν οὖν
 ἐκείνως, οἷον κριθὰς μεμίχθαι πυροῖς, ὅταν ἡτισοῦν
 παρ' ὄντινοῦν τεθῇ. εἰ δ' ἐστὶ πᾶν σῶμα διαιρετόν,
 εἴπερ καὶ ἔστι σῶμα σώματι μικτόν ὁμοιομερές,
 5 ὅτιοῦν ἂν δέοι μέρος γίνεσθαι παρ' ὅτιοῦν. ἐπεὶ
 256

everything cannot be mixed with everything, but each of the ingredients which are mixed must originally exist separately, and no property can have a separate existence. Since, however, some things have a potential, and other things an actual, existence, it is possible for things which combine in a mixture to "be" in one sense and "not-be" in another, the resulting compound formed from them being actually something different but each ingredient being still potentially what it was before they were mixed and not destroyed. (This is the difficulty which arose in our earlier argument, and it is clear that the ingredients of a mixture first come together after having been separate and can be separated again.) They do not actually persist as "body" and "white," nor are they destroyed (either one or both of them), for their potentiality is preserved. Let us, therefore, dismiss these questions, but the problem closely connected with them must be discussed, namely, whether mixture is something relative to perception.

When the ingredients of the mixture have been divided into such small particles and so set side by side with one another that each is not apparent to the sense-perception, have they then been mixed? Or is this not so, and is mixture of such a nature that every particle of one ingredient is side by side with a particle of the other ingredient? The term certainly is used in the former sense; for instance, we say that barley is mixed with wheat when each grain of barley is placed side by side with a grain of wheat. But if every body is divisible, then since body mixed with body is made up of like parts, every part of each ingredient ought to be side by side with a part of the other. But since it is not possible for a body to be

δ' οὐκ ἔστιν εἰς τἀλάχιστα διαιρεθῆναι, οὔτε σύν-
 θεσις ταὐτὸ καὶ μίξις ἀλλ' ἕτερον, δῆλον ὡς οὔτε
 κατὰ μικρὰ σωζόμενα δεῖ τὰ μιγνύμενα φάναι
 μεμίχθαι (σύνθεσις γὰρ ἔσται καὶ οὐ κρασις οὐδὲ
 10 μίξις, οὐδ' ἔξει τὸν αὐτὸν λόγον τῷ ὅλῳ τὸ μόριον.
 φαμέν δὲ δεῖν,¹ εἴπερ μέμικται,² τὸ μιχθὲν ὁμοιο-
 μερές εἶναι, καὶ ὥσπερ τοῦ ὕδατος τὸ μέρος ὕδωρ,
 οὔτω καὶ τοῦ κραθέντος. ἂν δ' ἡ κατὰ μικρὰ
 σύνθεσις ἢ μίξις, οὐθὲν συμβήσεται τούτων, ἀλλὰ
 μόνον μεμιγμένα πρὸς τὴν αἴσθησιν· καὶ τὸ αὐτὸ
 15 τῷ μὲν μεμιγμένον, ἐὰν μὴ βλέπῃ ὀξύ, τῷ Λυγ-
 κεί δ' οὐδὲν μεμιγμένον) οὔτε τῇ διαιρέσει ὥστε
 ὁτιοῦν παρ' ὁτιοῦν μέρος· ἀδύνατον γὰρ οὔτω διαι-
 ρεθῆναι. ἢ οὖν οὐκ ἔστι μίξις, ἢ λεκτέον τοῦτο
 πῶς ἐνδέχεται γίνεσθαι πάλιν.

Ἔστι δὴ, ὡς ἔφαιμεν, τῶν ὄντων τὰ μὲν ποιητικά,
 τὰ δ' ὑπὸ τούτων παθητικά. τὰ μὲν οὖν ἀντι-
 20 στρέφει, ὅσων ἢ αὐτὴ ὕλη ἐστί, καὶ ποιητικὰ ἀλ-
 λήλων καὶ παθητικά ὑπ' ἀλλήλων· τὰ δὲ ποιεῖ
 ἀπαθῇ ὄντα, ὅσων μὴ ἢ αὐτὴ ὕλη. τούτων μὲν
 οὖν οὐκ ἔστι μίξις· διὸ οὐδ' ἡ ἰατρικὴ ποιεῖ ὑγίειαν
 οὐδ' ἡ ὑγίεια μιγνυμένη τοῖς σώμασιν. τῶν δὲ

¹ δ' E.L.² μέμικται F : μεμίχθαι E : δεῖ μεμίχθαι τι L.

^a One of the Argonauts, famous for his keen sight (Apollonius Rhodius i. 153 ff.).

divided into its smallest parts and "composition" and mixture are not the same thing but different, it is clear (*a*) that we must not say that the ingredients, if they are preserved in small particles, are mixed (for this will be "composition" and not "blending" or "mixing," nor will the part show the same ratio between its constituents as the whole ; but we say that, if mixing has taken place, the mixture ought to be uniform throughout, and, just as any part of water is water, so any part of what is blended should be the same as the whole. But if mixing is a composition of small particles, none of these things will happen, but the ingredients will only be mixed according to the standard of sense-perception, and the same thing will be a mixture to one man, if he has not sharp sight, but to the eyes of Lynceus^a will not be mixed); it is also clear (*b*) that we must not say that things are mixed by means of a division whereby every part of one ingredient is set by the side of a part of the other ; for it is impossible for them to be thus divided. Either, then, there is no mixing, or another explanation must be given of the way in which it occurs.

Now, as we maintained, some of those things which exist are capable of action and others capable of being acted upon by them. Some things, then, namely, those whose matter is the same, "reciprocate," that is, are capable of acting and being acted upon by one another, while other things, namely, those which have not the same matter, act but are not liable to be acted upon. Of the latter, then, no mixing is possible ; hence, neither the art of healing nor health mixing with the patients' bodies can produce health. But of things which are capable of

328 a

ποιητικῶν καὶ παθητικῶν ὅσα εὐδιαίρετα, πολλὰ
 25 μὲν ὀλίγοις καὶ μεγάλα μικροῖς συντιθέμενα οὐ
 ποιεῖ μίξιν, ἀλλ' αὖξῃσιν τοῦ κρατοῦντος· μετα-
 βάλλει γὰρ θάτερον εἰς τὸ κρατοῦν, οἷον σταλαγμοὺς
 οἴνου μυρίοις χοεῦσιν ὕδατος οὐ μίγνυται· λύεται
 γὰρ τὸ εἶδος καὶ μεταβάλλει εἰς τὸ πᾶν ὕδωρ.
 ὅταν δὲ ταῖς δυνάμεσιν ἰσάζῃ πως, τότε μετα-
 30 βάλλει μὲν ἑκάτερον εἰς τὸ κρατοῦν ἐκ τῆς αὐτοῦ
 φύσεως, οὐ γίνεται δὲ θάτερον, ἀλλὰ μεταξὺ καὶ
 κοινόν.

Φανερόν οὖν ὅτι ταῦτ' ἐστὶ μικτὰ ὅσα ἐναντίωσιν
 ἔχει τῶν ποιούντων· ταῦτα γὰρ δὴ ὑπ' ἀλλήλων
 ἐστὶ παθητικά. καὶ μικρὰ δὲ μικροῖς παρατιθέμενα
 μίγνυται μᾶλλον· ῥᾶον γὰρ καὶ θᾶττον ἄλληλα
 35 μεθίστησιν. τὸ δὲ πολὺ καὶ ὑπὸ πολλοῦ χρονίως
 328 b τοῦτο δρᾷ. διὸ τὰ εὐόριστα τῶν διαιρετῶν καὶ
 παθητικῶν μικτὰ (διαιρεῖται γὰρ εἰς μικρὰ ταῦτα
 ῥαδίως· τοῦτο γὰρ ἦν τὸ εὐορίστω εἶναι), οἷον τὰ
 ὑγρὰ μικτὰ μάλιστα τῶν σωμάτων· εὐόριστον γὰρ
 μάλιστα τὸ ὑγρὸν τῶν διαιρετῶν, ἐὰν μὴ γλίσχρον
 5 ᾗ· ταῦτα γὰρ δὴ πλείω καὶ μείζω μόνον ποιεῖ
 τὸν ὄγκον. ὅταν δ' ᾗ θάτερον μόνον παθητικὸν ἢ
 σφόδρα, τὸ δὲ πάμπαν ἡρέμα, ἢ οὐδὲν πλεῖον τὸ
 260

COMING-TO-BE AND PASSING-AWAY, I. 10

action and capable of being acted upon, those which are easily divisible, when many of one of them are compounded with few of another or a large bulk with a small, do not produce a mixture but an increase of the predominant ingredient, for there is a change of the other ingredient into the predominant. (For example, a drop of wine does not mix with ten thousand measures of water, for its form is dissolved and it changes so as to become part of the total volume of water.) But when there is some sort of balance between the "active powers," then each changes from its own nature into the predominant ingredient, without, however, becoming the other but something between the two with common properties.

It is clear, therefore, that those agents are capable of admixture which show contrariety, for these can be acted upon by one another; and they mix all the better if small particles of the one ingredient are set side by side with small particles of the other, for then they more easily and more quickly cause a change in one another, whereas a large quantity of one takes a long time to be affected in this way by a large quantity of the other. Hence, those of the divisible and susceptible materials whose form is easily modified are capable of mixture; for they are easily divided into small particles (for that is what "to be easily modified in form" means); for example, the liquids are the most "mixable" of bodies, since of "divisibles" liquid is the most easily modified in form, provided it is not viscous (for viscous liquids merely increase the volume and bulk). But when one only of the ingredients is susceptible to action—or is excessively susceptible, while the other ingredient is only slightly so—the result of the mixture

Aristotle's
view of
"mixture."

- μιχθὲν ἐξ ἀμφοῖν ἢ μικρόν, ὅπερ συμβαίνει περὶ
 τὸν καττίτερον καὶ τὸν χαλκόν. ἓνια γὰρ ψελλί-
 10 ζεται πρὸς ἄλληλα τῶν ὄντων καὶ ἐπαμφοτερίζει·
 φαίνεται γάρ πως καὶ μικτὰ ἡρέμα, καὶ ὡς
 θάτερον μὲν δεκτικὸν θάτερον δ' εἶδος. ὅπερ ἐπὶ
 τούτων συμβαίνει· ὁ γὰρ καττίτερος ὡς πάθος τι
 ὦν ἄνευ ὕλης τοῦ χαλκοῦ σχεδὸν ἀφανίζεται, καὶ
 μιχθεὶς ἅπεισι χρωματίσας μόνον. ταὐτὸ δὲ τοῦτο
 συμβαίνει καὶ ἐφ' ἐτέρων.
- 15 Φανερόν τοίνυν ἐκ τῶν εἰρημένων καὶ ὅτι ἔστι
 μίξις καὶ τί ἐστι καὶ διὰ τί, καὶ ποῖα μικτὰ τῶν
 ὄντων, ἐπεὶ περ ἐστὶν ἓνια τοιαῦτα οἶα παθητικά
 τε ὑπ' ἀλλήλων καὶ εὐόριστα καὶ εὐδιαίρετα· ταῦτα
 γὰρ οὐτ' ἐφθάρθαι ἀνάγκη μεμιγμένα οὐτ' ἔτι
 ταῦτ' ἀπλῶς εἶναι, οὔτε σύνθεσιν εἶναι τὴν μίξιν
 20 αὐτῶν, οὔτε πρὸς τὴν αἴσθησιν· ἀλλ' ἔστι μικτὸν
 μὲν ὃ ἂν εὐόριστον ὄν παθητικὸν ἢ καὶ ποιητικὸν
 καὶ τοιούτῳ μικτόν (πρὸς ὁμώνυμον γὰρ τὸ μικτόν),
 ἢ δὲ μίξις τῶν μικτῶν ἀλλοιωθέντων ἔνωσις.

of the two is no greater in volume or very little greater, as happens when tin and copper are mixed. For some things adopt a hesitant and wavering attitude towards one another, for they appear somehow to be only slightly "mixable," one, as it were, acting in a "receptive" manner, the other as a "form." This is what happens with these metals; the tin almost disappears as though it were a property of the copper without any material of its own and, after being mixed, almost vanishes, having only given its colour to the copper. And the same thing happens in other instances too.

It is clear, then, from what has been said, that there is such a process as mixing, and what it is, and how it occurs, and what kind of existing things are "mixable," seeing that some things are of such a nature as to be acted upon by one another and easily modified in shape and easily divisible. For it does not necessarily follow either that they are destroyed by having been mixed, or that they simply remain still the same, or that their "mixture" is composition, or only dependent on perception; but anything is "mixable" which, being easily modified in shape, is capable of acting or being acted upon, and is "mixable" with something of the same kind as itself (for the term "mixable" is used in relation to something else which is also called "mixable"), and mixture is the union of "mixables," when they have undergone alteration.

B

328 b 26 1. Περὶ μὲν οὖν μίξεως καὶ ἀφῆς καὶ τοῦ ποιεῖν
καὶ πάσχειν εἴρηται πῶς ὑπάρχει τοῖς μεταβάλλουσι
κατὰ φύσιν, ἔτι δὲ περὶ γενέσεως καὶ φθορᾶς
τῆς ἀπλῆς, πῶς καὶ τίνος¹ ἐστὶ καὶ διὰ τίν'
30 αἰτίαν. ὁμοίως δὲ καὶ περὶ ἀλλοιώσεως εἴρηται, τί
τὸ ἀλλοιοῦσθαι καὶ τίν' ἔχει διαφορὰν αὐτῶν. λοιπὸν
δὲ θεωρῆσαι περὶ τὰ καλούμενα στοιχεῖα τῶν σω-
μάτων.

Γένεσις μὲν γὰρ καὶ φθορὰ πάσαις ταῖς φύσει
συνεστῶσαις οὐσίαις οὐκ ἄνευ τῶν αἰσθητῶν σω-
μάτων· τούτων δὲ τὴν ὑποκειμένην ὕλην οἱ μὲν
35 φασιν εἶναι μίαν, οἷον ἀέρα τιθέντες ἢ πῦρ ἢ τι
329 a μεταξὺ τούτων, σῶμά τε ὃν καὶ χωριστόν, οἱ δὲ
πλείω τὸν ἀριθμὸν ἐνός, οἱ μὲν πῦρ καὶ γῆν, οἱ
δὲ ταῦτά τε καὶ ἀέρα τρίτον, οἱ δὲ καὶ ὕδωρ τούτων
τέταρτον, ὥσπερ Ἐμπεδοκλῆς· ἐξ ὧν συγκρινο-
μένων καὶ διακρινομένων ἢ ἀλλοιουμένων συμ-
5 βαίνειν τὴν γένεσιν καὶ τὴν φθορὰν τοῖς πράγμασιν.

Ὅτι μὲν οὖν τὰ πρῶτα ἀρχὰς καὶ στοιχεῖα κα-
λῶς ἔχει λέγειν, ἔστω συνομολογούμενον, ἐξ ὧν
μεταβαλλόντων ἢ κατὰ σύγκρισιν καὶ διάκρισιν ἢ

¹ πῶς καὶ τίνος .J¹D^b : τίνος καὶ πῶς E.¹2 : καὶ τίνος καὶ
πῶς HL.

BOOK II

1. WE have now dealt with the way in which mixture, contact and action-and-passion are attributable to things which undergo natural change ; we have, moreover, explained how unqualified coming-to-be and passing-away exist, and with what they are concerned and owing to what cause they occur. Similarly, we have dealt with " alteration " and explained how it differs from coming-to-be and passing-away. It remains to consider the so-called elements of bodies.

Chapters
1-8.
*What comes-
to-be and
passes-away
consists of
elements,
that is,
simple
bodies.
What are
they and
how do they
combine !*

Coming-to-be and passing-away occur in all naturally constituted substances, if we presuppose the existence of perceptible bodies. Some people assert that the matter underlying these bodies is one ; for example, they suppose it to be Air or Fire, or an intermediate between these two, but still a single separate body. Others hold that there are more than one material, some thinking that they are Fire and Earth, others adding Air as a third, others (like Empedocles) adding Water as a fourth ; and it is, they say, from the association and separation or alteration of these that coming-to-be and passing-away of things comes about.

Views held
by various
schools.

Let us, then, be agreed that the primary materials from the changes of which, either by association or by separation or by some other kind of change,

κατ' ἄλλην μεταβολὴν συμβαίνει γένεσιν εἶναι καὶ
 φθοράν. ἀλλ' οἱ μὲν ποιοῦντες μίαν ὕλην παρὰ
 10 τὰ εἰρημένα, ταύτην δὲ σωματικὴν καὶ χωριστὴν,
 ἀμαρτάνουσιν· ἀδύνατον γὰρ ἄνευ ἐναντιώσεως εἶ-
 ναι τὸ σῶμα τοῦτο αἰσθητῆς¹. ἥ γὰρ κοῦφον ἢ
 βαρὺ ἢ ψυχρὸν ἢ θερμὸν ἀνάγκη εἶναι τὸ ἄπειρον
 τοῦτο, ὃ λέγουσί τινες εἶναι τὴν ἀρχήν. ὥς δ' ἐν
 τῷ Τιμαίῳ γέγραπται, οὐδένα ἔχει διορισμόν· οὐ
 15 γὰρ εἴρηκε σαφῶς τὸ πανδεχές, εἰ χωρίζεται τῶν
 στοιχείων. οὐδὲ χρῆται οὐδέν, φήσας εἶναι ὑπο-
 κείμενόν τι τοῖς καλουμένοις στοιχείοις πρότερον,
 οἷον χρυσὸν τοῖς ἔργοις τοῖς χρυσοῖς. (καίτοι καὶ
 τοῦτο οὐ καλῶς λέγεται τοῦτον τὸν τρόπον λεγό-
 μενον, ἀλλ' ὧν μὲν ἀλλοιώσεις, ἔστιν οὕτως, ὧν
 20 δὲ γένεσις καὶ φθορά, ἀδύνατον ἐκεῖνο προσαγο-
 ρεῦεσθαι ἐξ οὗ γέγονεν. καίτοι γέ φησι μακρῷ
 ἀληθέστατον εἶναι χρυσὸν λέγειν ἕκαστον εἶναι.)
 ἀλλὰ τῶν στοιχείων ὄντων στερεῶν μέχρι ἐπιπέδων
 ποιεῖται τὴν ἀνάλυσιν· ἀδύνατον δὲ τὴν τιθήνην
 καὶ τὴν ὕλην τὴν πρώτην τὰ ἐπίπεδα εἶναι. ἡμεῖς
 25 δὲ φαμέν μὲν εἶναί τινα ὕλην τῶν σωμάτων τῶν
 αἰσθητῶν, ἀλλὰ ταύτην οὐ χωριστὴν ἀλλ' αἰεὶ μετ'
 ἐναντιώσεως, ἐξ ἧς γίνεται τὰ καλούμενα στοιχεῖα.
 διώρισται δὲ περὶ αὐτῶν ἐν ἑτέροις ἀκριβέστερον.
 οὐ μὴν ἀλλ' ἐπειδὴ καὶ τὸν τρόπον τοῦτόν ἐστιν
 ἐκ τῆς ὕλης τὰ σώματα τὰ πρῶτα, διοριστέον καὶ
 30 περὶ τούτων, ἀρχὴν μὲν καὶ πρώτην οἰομένοις εἶναι

¹ αἰσθητῆς HJ : αἰσθητόν E : τὸ αἰσθητόν F : αἰσθητὸν ὃν I..

^a Plato, *Timaeus* 51 A.

^b *Ibid.* 49 D—50 C.

^c *Ibid.* 53 C ff.

^d *Ibid.* 49 A.

^e *Phys.* i. 6 and 7.

COMING-TO-BE AND PASSING-AWAY, II. 1

coming-to-be and passing-away occur, are rightly described as "sources" and "elements." But (a) those who postulate that there is a single matter, besides the bodies which we have mentioned, and that this is corporeal and separable, are mistaken; for it is impossible that this body can exist without "perceptible contrariety," for this "infinite," which some say must be the source of reality, must be either light or heavy, or hot or cold. And (b) what is written in the *Timaeus* ^a is not accurately defined; for Plato has not clearly stated whether his "omnirecipient" has any existence apart from the elements, nor does he make any use of it, after saying that it is a *substratum* prior to the so-called elements, just as gold is the *substratum* of objects made of gold. (Yet put in this way the statement is not a happy one. Things of which there is coming-to-be and passing-away cannot be called after that out of which they have come-to-be, though it is possible for things which are altered to keep the name of that of which they are alterations. However, what he actually says ^b is that by far the truest account is to say that each of the objects is "gold.") However, he carries the analysis of the elements, ^c though they are solids, back to "planes," and it is impossible for the "Nurse," ^d that is the primary matter, to consist of planes. Our theory is that there is matter of which the perceptible bodies consist, but that it is not separable but always accompanied by contrariety, and it is from this that the so-called elements come into being; but a more accurate account of these things has been given elsewhere. ^e However, since the primary bodies are also derived in this way from matter, we must explain about these also, reckoning as a source and as primary

Aristotle's view that the elements are primary matter and certain "contraries."

329 a

τὴν ὕλην τὴν ἀχώριστον μὲν, ὑποκειμένην δὲ τοῖς ἐναντίοις· οὔτε γὰρ τὸ θερμὸν ὕλη τῷ ψυχρῷ οὔτε τοῦτο τῷ θερμῷ, ἀλλὰ τὸ ὑποκείμενον ἀμφοῖν. ὥστε πρῶτον μὲν τὸ δυνάμει σῶμα αἰσθητὸν ἀρχή, δεύτερον δ' αἱ ἐναντιώσεις, λέγω δ' οἶον θερμότης
 35 καὶ ψυχρότης, τρίτον δ' ἤδη πῦρ καὶ ὕδωρ καὶ τὰ
 329 b τοιαῦτα· ταῦτα μὲν γὰρ μεταβάλλει εἰς ἄλληλα, καὶ οὐχ ὡς Ἐμπεδοκλῆς καὶ ἕτεροι λέγουσιν (οὐδὲ γὰρ ἂν ἦν ἀλλοιώσις), αἱ δ' ἐναντιώσεις οὐ μεταβάλλουσιν. ἀλλ' οὐδὲν ἦττον καὶ ὡς σώματος ποίας καὶ πόσας λεκτέον ἀρχάς· οἱ μὲν γὰρ ἄλ-
 5 λοι ὑποθέμενοι χρῶνται, καὶ οὐδὲν λέγουσι διὰ τί αὐταὶ ἢ τοσαῦται.

2. Ἐπεὶ οὖν ζητοῦμεν αἰσθητοῦ σώματος ἀρχάς, τοῦτο δ' ἐστὶν ἀπτοῦ, ἀπτὸν δ' οὐ ἢ αἰσθησις ἀφή, φανερόν ὅτι οὐ πᾶσαι αἱ ἐναντιώσεις σώματος
 10 εἶδη καὶ ἀρχὰς ποιοῦσιν, ἀλλὰ μόνον αἱ κατὰ τὴν ἀφήν· κατ' ἐναντίωσίν τε γὰρ διαφέρουσι, καὶ κατὰ ἀπτὴν ἐναντίωσιν. διὸ οὔτε λευκότης καὶ μελανία οὔτε γλυκύτης καὶ πικρότης, ὁμοίως δ' οὐδὲ τῶν ἄλλων τῶν αἰσθητῶν ἐναντιώσεων οὐδὲν ποιεῖ
 στοιχεῖον. καίτοι πρότερον ὅψις ἀφῆς, ὥστε καὶ
 15 τὸ ὑποκείμενον πρότερον. ἀλλ' οὐκ ἔστι σώματος ἀπτοῦ πάθος ἢ ἀπτὸν, ἀλλὰ καθ' ἕτερον, καὶ εἰ ἔτυχε τῇ φύσει πρότερον.

Αὐτῶν δὲ πρῶτον τῶν ἀπτῶν διαιρετέον ποῖαι πρῶται διαφοραὶ καὶ ἐναντιώσεις. εἰσὶ δ' ἐναντιώσεις κατὰ τὴν ἀφήν αἶδε, θερμὸν ψυχρόν, ξηρὸν
 268

COMING-TO-BE AND PASSING-AWAY, II. 1-2

the matter which is inseparable from, but underlies, the contrarieties ; for " the hot " is not matter for " the cold," nor " the cold " for " the hot," but the *substratum* is matter for them both. Therefore, firstly, the potentially perceptible body, secondly, the contrarieties (for example, heat and cold), and thirdly, Fire and Water and the like are " sources." For the bodies in this third class change into one another and are not as Empedocles and others describe them " (otherwise alteration could not have taken place), whereas the contrarieties do not change. Nevertheless, even so the question must be decided what kinds of contrariety and how many of them there are which are sources of body ; for all other philosophers assume and make use of them without stating why they are these and why they are of a particular number.

2. Since, therefore, we are seeking the sources of perceptible bodies, and this means tangible, and tangible is that of which the perception is touch, it is clear that not all the contrarieties constitute " forms " and " sources " of body, but only those connected with touch ; for it is in the matter of contrariety that they differ, that is, tangible contrariety. Therefore neither whiteness and blackness, nor sweetness and bitterness, nor any of the other perceptible contrarieties constitute an element. Yet sight is prior to touch, so that its subject is also prior ; but it is a quality of tangible body not in virtue of its tangibility but because of something else, even though it happens to be naturally prior.

Of the tangible differences and contrarieties themselves we must distinguish which are primary. The following are contrarieties according to touch : hot

^a *i.e.* as immutable.

329 b

20 ὑγρόν, βαρὺ κοῦφον, σκληρόν μαλακόν, γλίσχρον
 κραῦρον, τραχὺ λεῖον, παχὺ λεπτόν. τούτων δὲ
 βαρὺ μὲν καὶ κοῦφον οὐ ποιητικὰ οὐδὲ παθητικά·
 οὐ γὰρ τῷ ποιεῖν τι ἕτερον ἢ πάσχειν ὑφ' ἑτέρου
 λέγονται. δεῖ δὲ ποιητικὰ εἶναι ἀλλήλων καὶ
 παθητικὰ τὰ στοιχεῖα· μίγνυται γὰρ καὶ μετα-
 25 βάλλει εἰς ἄλληλα. θερμὸν δὲ καὶ ψυχρὸν καὶ
 ὑγρόν καὶ ξηρόν τὰ μὲν τῷ ποιητικὰ εἶναι τὰ δὲ
 τῷ παθητικὰ λέγεται· θερμὸν γάρ ἐστι τὸ συγ-
 κρῖνον τὰ ὁμογενῇ (τὸ γὰρ διακρίνειν, ὅπερ φασὶ
 ποιεῖν τὸ πῦρ, συγκρίνειν ἐστὶ τὰ ὁμόφυλα· συμ-
 βαίνει γὰρ ἐξαιρεῖν τὰ ἀλλότρια), ψυχρὸν δὲ τὸ
 30 συνάγον καὶ συγκρῖνον ὁμοίως τὰ τε συγγενῇ καὶ
 τὰ μὴ ὁμόφυλα, ὑγρόν δὲ τὸ ἀόριστον οἰκείῳ ὄρω
 εὐόριστον ὄν, ξηρόν δὲ τὸ εὐόριστον μὲν οἰκείῳ
 ὄρω, δυσόριστον δέ. τὸ δὲ λεπτὸν καὶ παχὺ καὶ
 γλίσχρον καὶ κραῦρον καὶ σκληρόν καὶ μαλακόν
 καὶ αἱ ἄλλαι διαφοραὶ ἐκ τούτων· ἐπεὶ γὰρ τὸ
 35 ἀναπληστικόν ἐστι τοῦ ὑγροῦ διὰ τὸ μὴ ὠρίσθαι
 330 a μὲν εὐόριστον δ' εἶναι καὶ ἀκολουθεῖν τῷ ἀπτο-
 μένῳ, τὸ δὲ λεπτὸν ἀναπληστικόν (λεπτομερές
 γάρ, καὶ τὸ μικρομερές ἀναπληστικόν· ὅλον γὰρ
 270

COMING-TO-BE AND PASSING-AWAY, II. 2

and cold, dry and moist, heavy and light, hard and soft, viscous and brittle, rough and smooth, coarse and fine. Of these heavy and light are not active nor yet passive ; for they do not get their names because they act on something else or are acted upon by something else ; elements, on the other hand, must be mutually active and passive, for they mix and change into one another. But hot and cold, and dry and moist are terms of which the first pair get their names because they are active, the second pair because they are passive ; for “ hot ” is that which associates things of the same kind (for to “ dissociate,” which, they say, is an action of Fire, is to associate things of the same class, since the result is to destroy things which are foreign), but cold is that which brings together and associates alike both things which are of the same kind and things which are not of the same class. Moist^a is that which, though easily adaptable to form, cannot be confined within limits of its own, while dry is that which is easily confined within its own limits but is not easily adaptable in form. From the moist and the dry are derived the fine and the coarse, the viscous and the brittle, the hard and the soft and the other contrasted pairs. For since “ capacity for filling up something ” is characteristic of the moist, because it is not confined within bounds but is adaptable in form and follows the shape of that which comes into contact with it,^b and that which is “ fine ” is “ capable of filling up something ” (for it consists of small particles, and that which consists of small particles is capable of filling up something, for the whole is in

^a Aristotle means liquid.

^b *e.g.*, water conforms with the shape of the vessel into which it is poured.

ὅλου ἄπτεται· τὸ δὲ λεπτὸν μάλιστα τοιοῦτον),
 φανερόν ὅτι τὸ μὲν λεπτὸν ἔσται τοῦ ὑγροῦ, τὸ δὲ
 5 παχὺ τοῦ ξηροῦ. πάλιν δὲ τὸ μὲν γλίσχρον τοῦ
 ὑγροῦ (τὸ γὰρ γλίσχρον ὑγρὸν πεπονθὸς τί ἐστίν,
 οἶον τὸ ἔλαιον), τὸ δὲ κραῦρον τοῦ ξηροῦ· κραῦρον
 γὰρ τὸ τελέως ξηρόν, ὥστε καὶ πεπηγέναι δι'
 ἔλλειψιν ὑγρότητος. ἔτι τὸ μὲν μαλακὸν τοῦ ὑγροῦ
 (μαλακὸν γὰρ τὸ ὑπεῖκον εἰς ἑαυτὸ καὶ μὴ μεθιστά-
 10 μενον, ὅπερ ποιεῖ τὸ ὑγρὸν· διὸ καὶ οὐκ ἔστι τὸ
 ὑγρὸν μαλακόν, ἀλλὰ τὸ μαλακὸν τοῦ ὑγροῦ), τὸ
 δὲ σκληρόν τοῦ ξηροῦ· σκληρόν γάρ ἐστι τὸ πε-
 πηγὸς, τὸ δὲ πεπηγὸς ξηρόν. λέγεται δὲ ξηρόν
 καὶ ὑγρὸν πλεοναχῶς· ἀντίκειται γὰρ τῷ ξηρῷ καὶ
 τὸ ὑγρὸν καὶ τὸ διερόν, καὶ πάλιν τῷ ὑγρῷ καὶ τὸ
 15 ξηρόν καὶ τὸ πεπηγὸς· ἅπαντα δὲ ταῦτ' ἐστὶ τοῦ
 ξηροῦ καὶ τοῦ ὑγροῦ τῶν πρώτων λεχθέντων. ἐπεὶ
 γὰρ ἀντίκειται τῷ διερῷ τὸ ξηρόν, καὶ διερόν μὲν
 ἐστὶ τὸ ἔχον ἀλλοτρίαν ὑγρότητα ἐπιπολῆς, βε-
 βρεγμένον δὲ τὸ εἰς βάθος, ξηρόν δὲ τὸ ἐστερημένον
 ταύτης, φανερόν ὅτι τὸ μὲν διερόν ἔσται τοῦ ὑγροῦ,
 20 τὸ δ' ἀντικείμενον ξηρόν τοῦ πρώτου ξηροῦ. πάλιν
 δὲ τὸ ὑγρὸν καὶ τὸ πεπηγὸς ὡσαύτως· ὑγρὸν μὲν
 γὰρ ἐστὶ τὸ ἔχον οἰκείαν ὑγρότητα, βεβρεγμένον
 δὲ τὸ ἔχον ἀλλοτρίαν ὑγρότητα ἐν τῷ βάθει, πε-
 πηγὸς δὲ τὸ ἐστερημένον ταύτης. ὥστε καὶ τού-
 των ἔσται τὸ μὲν ξηροῦ τὸ δὲ ὑγροῦ. δῆλον τοίνυν
 25 ὅτι πᾶσαι αἱ ἄλλαι διαφοραὶ ἀνάγονται εἰς τὰς

^a See 329 b 30 ff.

COMING-TO-BE AND PASSING-AWAY, II. 2

contact with the whole, and that which is fine consists of the smallest possible particles), it is clear that the fine is derived from the moist and the coarse derived from the dry. Again, the viscous is derived from the moist (for that which is viscous is moisture which has undergone a certain treatment, as in the case of oil), and the brittle is derived from the dry ; for the completely dry is brittle, so that it has become solid through lack of moisture. Further, the soft is derived from the moist (for the soft is that which gives way and sinks into itself but does not change its position, as does the moist ; hence, too, the moist is not soft, but the soft is derived from the moist). The hard, on the other hand, is derived from the dry ; for that which has solidified is hard, and the solid is dry. Now “ dry ” and “ moist ” are used in several senses ; for both moist and damp are opposed to dry, and, again, solid as well as dry is opposed to moist. But all these qualities are derived from the dry and the moist which we mentioned originally.^a For the dry is opposed to the damp, and the damp is that which has foreign moisture on its surface, soaked being that which is damp to its innermost depth, while dry is that which is deprived of foreign moisture. Therefore, clearly the damp will be derived from the moist, and the dry, which is opposed to it, will be derived from the primary dry. So likewise, on the other hand, with the moist and the solidified ; for moist is that which contains its own moisture in its depth, while soaked is that which contains foreign moisture there, and solidified is that which has lost its foreign moisture ; so that of these the latter derives from the dry, the former from the moist. It is clear, then, that all the other differences are re-

330 a

πρώτας τέτταρας. αὗται δὲ οὐκέτι εἰς ἐλάττους· οὔτε γὰρ τὸ θερμὸν ὅπερ ὑγρὸν ἢ ὅπερ ξηρόν, οὔτε τὸ ὑγρὸν ὅπερ θερμὸν ἢ ὅπερ ψυχρόν, οὔτε τὸ ψυχρόν καὶ τὸ ξηρόν οὔθ' ὑπ' ἄλληλ' οὔθ' ὑπὸ τὸ θερμὸν καὶ τὸ ὑγρὸν εἰσιν· ὥστ' ἀνάγκη τέτταρας εἶναι ταύτας.

30 3. Ἐπεὶ δὲ τέτταρα τὰ στοιχεῖα, τῶν δὲ τεττάρων ἕξ αἱ συζεύξεις, τὰ δ' ἐναντία οὐ πέφυκε συνδυνάζεσθαι (θερμὸν γὰρ καὶ ψυχρὸν εἶναι τὸ αὐτὸ καὶ πάλιν ξηρόν καὶ ὑγρὸν ἀδύνατον), φανερόν ὅτι τέτταρες ἔσονται αἱ τῶν στοιχείων συζεύξεις,

330 b θερμοῦ καὶ ξηροῦ, καὶ θερμοῦ καὶ ὑγροῦ, καὶ πάλιν ψυχροῦ καὶ ὑγροῦ, καὶ ψυχροῦ καὶ ξηροῦ. καὶ ἡκολούθηκε κατὰ λόγον τοῖς ἀπλοῖς φαινομένοις σώμασι, πυρὶ καὶ ἀέρι καὶ ὕδατι καὶ γῇ· τὸ μὲν γὰρ πῦρ θερμὸν καὶ ξηρόν, ὁ δ' ἀήρ θερμὸν καὶ 5 ὑγρὸν (οἶον ἀτμὶς γὰρ ὁ ἀήρ), τὸ δ' ὕδωρ ψυχρὸν καὶ ὑγρὸν, ἡ δὲ γῆ ψυχρὸν καὶ ξηρόν, ὥστ' εὐλόγως διανέμεσθαι τὰς διαφορὰς τοῖς πρώτοις σώμασι, καὶ τὸ πλήθος αὐτῶν εἶναι κατὰ λόγον. ἅπαντες γὰρ οἱ τὰ ἀπλᾶ σώματα στοιχεῖα ποιοῦντες οἱ μὲν ἓν, οἱ δὲ δύο, οἱ δὲ τρία, οἱ δὲ τέτταρα ποιοῦσιν.

10 ὅσοι μὲν οὖν ἓν μόνον λέγουσιν, εἶτα πυκνῶσει καὶ μανώσει τᾶλλα γεννῶσι, τούτοις συμβαίνει δύο ποιεῖν τὰς ἀρχάς, τό τε μανὸν καὶ τὸ πυκνὸν ἢ τὸ θερμὸν καὶ τὸ ψυχρόν· ταῦτα γὰρ τὰ δημιουργοῦντα, τὸ δ' ἓν ὑπόκειται καθάπερ ὕλη. οἱ δ' εὐθύς δύο ποιοῦντες, ὥσπερ Παρμενίδης πῦρ καὶ 15 γῆν, τὰ μεταξὺ μίγματα ποιοῦσι τούτων, οἶον ἀέρα καὶ ὕδωρ. ὡσαύτως δὲ καὶ οἱ τρία λέγοντες,

^a i.e. are mathematically possible.

COMING-TO-BE AND PASSING-AWAY, II. 2-3

duced to the first four, and these cannot be further reduced to a lesser number ; for the hot is not that which is essentially moist or essentially dry, nor is the moist essentially hot or essentially cold, nor do the cold and the dry fall in the category of one another nor in that of the hot and moist ; hence these must necessarily be four of these elementary qualities.

3. Now since the elementary qualities are four in number and of these four six couples can be formed,^a but contraries are not of a nature which permits of their being coupled—for the same thing cannot be hot and cold, or again, moist and dry—it is clear that the pairs of elementary qualities will be four in number, hot and dry, hot and moist, and, again, cold and moist, and cold and dry. And, according to theory, they have attached themselves to the apparently simple bodies, Fire, Air, Water and Earth ; for Fire is hot and dry, Air is hot and moist (Air, for example, is vapour), Water is cold and moist, and Earth is cold and dry. Thus the variations are reasonably distributed among the primary bodies, and the number of these is according to theory. For all those who make out that the simple bodies are elements make them either one or two or three or four. Therefore (a) those who hold that there is only *one* and then generate everything else by condensation and rarefaction, as a result make the sources two in number, the rare and the dense or the hot and the cold ; for these are the creative forces, and “ the one ” underlies them as matter. But (b) those who hold that there are *two* from the beginning—as Parmenides held that there were Fire and Earth—make the intermediates, Air and Water, mixtures of these ; and (c) the same thing is done also by

The four elementary qualities (hot, cold, dry, moist) by being coupled together in different ways, constitute four simple bodies, Earth, Air, Fire and Water.

330 b

καθάπερ Πλάτων ἐν ταῖς διαιρέσεσιν· τὸ γὰρ μέσον μίγμα ποιεῖ. καὶ σχεδὸν ταῦτά λέγουσιν οἳ τε δύο καὶ οἱ τρία ποιοῦντες· πλὴν οἱ μὲν τέμνουσιν εἰς δύο τὸ μέσον, οἱ δ' ἐν μόνον ποιοῦσιν. ἔνιοι
 20 δ' εὐθὺς τέτταρα λέγουσιν, οἷον Ἐμπεδοκλῆς. συνάγει δὲ καὶ οὗτος εἰς τὰ δύο· τῷ γὰρ πυρὶ τᾶλλα πάντα ἀντιτίθησιν.

Οὐκ ἔστι δὲ τὸ πῦρ καὶ ὁ ἀήρ καὶ ἕκαστον τῶν εἰρημένων ἀπλοῦν, ἀλλὰ μικτόν. τὰ δ' ἀπλᾶ τοιαῦτα μὲν ἔστιν, οὐ μέντοι ταῦτά, οἷον εἴ τι τῷ πυρὶ ὅμοιον, πυροειδές, οὐ πῦρ, καὶ τὸ τῷ ἀέρι
 25 ἀεροειδές· ὁμοίως δὲ καπὶ τῶν ἄλλων. τὸ δὲ πῦρ ἔστιν ὑπερβολὴ θερμότητος, ὥσπερ καὶ κρύσταλλος ψυχρότητος· ἡ γὰρ πῆξις καὶ ἡ ζέσις ὑπερβολαί τινές εἰσιν, ἡ μὲν ψυχρότητος, ἡ δὲ θερμότητος. εἰ οὖν ὁ κρύσταλλός ἐστι πῆξις ὑγροῦ ψυχροῦ, καὶ τὸ πῦρ ἔσται ζέσις ξηροῦ θερμοῦ. διὸ καὶ οὐδέν
 30 οὔτ' ἐκ κρυστάλλου γίνεται οὔτ' ἐκ πυρός.

Ὅντων δὲ τεττάρων τῶν ἀπλῶν σωμάτων, ἑκάτερον τοῖν δυοῖν ἐκατέρου τῶν τόπων ἐστίν· πῦρ μὲν γὰρ καὶ ἀήρ τοῦ πρὸς τὸν ὅρον φερομένου, γῆ δὲ καὶ ὕδωρ τοῦ πρὸς τὸ μέσον. καὶ ἄκρα μὲν καὶ εἰλικρινέστατα πῦρ καὶ γῆ, μέσα δὲ καὶ με-
 331 a μιγμένα μᾶλλον ὕδωρ καὶ ἀήρ. καὶ ἑκάτερα ἐκατέροις ἐναντία· πυρὶ μὲν γὰρ ἐναντίον ὕδωρ, ἀέρι δὲ γῆ· ταῦτα γὰρ ἐκ τῶν ἐναντίων παθημάτων

^a It is doubtful what is meant here. The commentator Philoponos suggests that it was a collection of otherwise unpublished doctrines of Plato and thinks that Aristotle is referring to a theory of Plato that there was "the great" and "the small" and a third *ἀρχή*, which was a mixture of these and served as matter; but there is nothing to support this theory. H. H. Joachim takes "the Divisions" to mean the

COMING-TO-BE AND PASSING-AWAY, II. 3

those who hold that there are *three*, as Plato does in the "Divisions,"^a for he makes "the middle" a mixture. Those who hold that there are two and those who postulate *three* say practically the same things, except that the former divide the middle into two, while the latter treat it as one. But (d) some declare that there are four from the start, for instance Empedocles, though he also reduces these to two, for he too opposes all the others to Fire.

Fire, however, and Air and each of the other bodies which we have mentioned are not simple but mixed, while the simple forms of them are similar to them but not the same as they are; for example, that which is like fire is "fiery," not fire, and that which is like air is "air-like," and similarly with the rest. But fire is an excess of heat, just as ice is an excess of cold; for freezing and boiling are excesses, the former of cold, the latter of heat. If, therefore, ice is a freezing of moist and cold, so fire will be a boiling of dry and hot; and that is why nothing comes to be from ice or from fire.

The simple bodies, then, being four in number, make up two pairs belonging to two regions; for Fire and Air form the body which is carried along towards the "limit," while Earth and Water form the body which is carried along towards the centre^b; and Fire and Earth are extremes and very pure, while Water and Air are intermediates and more mixed. Further, the members of each pair are contrary to the members of the other pair, Water being the contrary of Fire, and Earth of Air, for they are

sections in the *Timaeus* (35 A ff.), where Plato makes the middle of his three kinds of substance a blend of the other two.

^b Cf. *De Caelo* 308 a 14 ff.

331 a

συνέστηκεν. οὐ μὴν ἀλλ' ἀπλῶς γε τέτταρα ὄντα
 ἑνὸς ἕκαστόν ἐστι, γῇ μὲν ξηροῦ μᾶλλον ἢ ψυχροῦ,
 5 ὕδωρ δὲ ψυχροῦ μᾶλλον ἢ ὑγροῦ, ἀήρ δ' ὑγροῦ
 μᾶλλον ἢ θερμοῦ, πῦρ δὲ θερμοῦ μᾶλλον ἢ ξηροῦ.

4. Ἐπεὶ δὲ διώρισται πρότερον ὅτι τοῖς ἀπλοῖς
 σώμασιν ἐξ ἀλλήλων ἢ γένεσις, ἅμα δὲ καὶ κατὰ
 τὴν αἴσθησιν φαίνεται γινόμενα (οὐ γὰρ ἂν ἦν ἀλ-
 10 λοιώσεις· κατὰ γὰρ τὰ τῶν ἀπτῶν πάθη ἢ ἀλλοιώσεις
 ἐστίν), λεκτέον τίς ὁ τρόπος τῆς εἰς ἄλληλα μετα-
 βολῆς, καὶ πότερον ἅπαν ἐξ ἁπαντος γίνεσθαι
 δυνατὸν ἢ τὰ μὲν δυνατὸν τὰ δ' ἀδύνατον. ὅτι μὲν
 οὖν ἅπαντα πέφυκεν εἰς ἄλληλα μεταβάλλειν, φανε-
 ρόν· ἢ γὰρ γένεσις εἰς ἐναντία καὶ ἐξ ἐναντίων, τὰ
 15 δὲ στοιχεῖα πάντα ἔχει ἐναντίωσιν πρὸς ἄλληλα
 διὰ τὸ τὰς διαφορὰς ἐναντίας εἶναι· τοῖς μὲν γὰρ
 ἀμφοτέραι ἐναντίαι, οἶον πυρὶ καὶ ὕδατι (τὸ μὲν
 γὰρ ξηρὸν καὶ θερμόν, τὸ δ' ὑγρὸν καὶ ψυχρόν),
 τοῖς δ' ἢ ἑτέρα μόνον, οἶον ἀέρι καὶ ὕδατι (τὸ μὲν
 20 γὰρ ὑγρὸν καὶ θερμόν, τὸ δὲ ὑγρὸν καὶ ψυχρόν).
 ὥστε καθόλου μὲν φανερόν ὅτι πᾶν ἐκ παντὸς γί-
 νεσθαι πέφυκεν, ἥδη δὲ καθ' ἕκαστον οὐ χαλεπὸν
 ἰδεῖν πῶς· ἅπαντα μὲν γὰρ ἐξ ἀπάντων ἐσται,
 διοίσει δὲ τῷ θᾶπτον καὶ βραδύτερον καὶ τῷ ῥᾶον
 καὶ χαλεπώτερον. ὅσα μὲν γὰρ ἔχει σύμβολα
 25 πρὸς ἄλληλα, ταχεῖα τούτων ἢ μετάβασις, ὅσα δὲ

^a *De Caelo* 304 b 23 ff.

COMING-TO-BE AND PASSING-AWAY, II. 3-4

made up of different qualities. However, since they are four, each is described simply as possessing a single quality, Earth a dry rather than a cold quality, Water a cold rather than a moist, Air a moist rather than a hot, and Fire a hot rather than a dry.

4. Since it has been determined in a former discussion ^a that the coming-to-be of simple bodies is out of one another, and at the same time, too, it is evident from sense-perception that they *do* come-to-be (for otherwise there would have been no alteration—for alteration is concerned with the qualities of tangible things), we must state (a) what is the manner of their reciprocal change, and (b) whether any one of them can come-to-be out of any other one of them, or some can do so and others cannot. Now it is manifest that all of them are of such a nature as to change into one another; for coming-to-be is a process into contraries and out of contraries, and all the elements are characterized by contrarieties one to another, because their distinguishing qualities are contrary. In some of them both qualities are contrary, for example, in Fire and Water (for the former is dry and hot, the latter is moist and cold), in others only one, for example, in Air and Water (for the former is moist and hot, the latter is moist and cold). Hence, it is clear, if we take a general view, that every one of them naturally comes-to-be out of every one of them and, if we take them separately, it is not difficult now to see how this happens; for all will be the product of all, but there will be a difference owing to the greater and less speed and the greater and less difficulty of the process. For the change will be quick in those things which have qualities which correspond with one

The four simple bodies change into one another in various manners.

331 a

μὴ ἔχει, βραδεῖα, διὰ τὸ ῥᾶον εἶναι τὸ ἐν ἧ τὰ πολλὰ μεταβάλλειν, οἷον ἐκ πυρὸς μὲν ἔσται ἀήρ θατέρου μεταβάλλοντος (τὸ μὲν γὰρ ἦν θερμὸν καὶ ξηρόν, τὸ δὲ θερμὸν καὶ ὑγρόν, ὥστε ἂν κρατηθῇ τὸ ξηρόν ὑπὸ τοῦ ὑγροῦ, ἀήρ ἔσται). πάλιν δὲ ἐξ

30 αἲρος ὕδωρ, ἐὰν κρατηθῇ τὸ θερμὸν ὑπὸ τοῦ ψυχροῦ (τὸ μὲν γὰρ ἦν θερμὸν καὶ ὑγρόν, τὸ δὲ ψυχρόν καὶ ὑγρόν, ὥστε μεταβάλλοντος τοῦ θερμοῦ ὕδωρ ἔσται).

τὸν αὐτὸν δὲ τρόπον καὶ ἐξ ὕδατος γῆ καὶ ἐκ γῆς πῦρ· ἔχει γὰρ ἄμφω πρὸς ἄμφω σύμβολα· τὸ μὲν

35 γὰρ ὕδωρ ὑγρόν καὶ ψυχρόν, ἡ δὲ γῆ ψυχρόν καὶ ξηρόν, ὥστε κρατηθέντος τοῦ ὑγροῦ γῆ ἔσται. καὶ

331 b πάλιν ἐπεὶ τὸ μὲν πῦρ ξηρόν καὶ θερμόν, ἡ δὲ γῆ ψυχρόν καὶ ξηρόν, ἐὰν φθαρῇ τὸ ψυχρόν, πῦρ ἔσται

ἐκ γῆς.

Ὡστε φανερόν ὅτι κύκλῳ τε ἔσται ἡ γένεσις τοῖς ἀπλοῖς σώμασι, καὶ ῥᾶστος οὗτος ὁ τρόπος τῆς μεταβολῆς διὰ τὸ σύμβολα ἐνυπάρχειν τοῖς

5 ἐφεξῆς. ἐκ πυρὸς δὲ ὕδωρ καὶ ἐξ αἲρος γῆν καὶ πάλιν ἐξ ὕδατος καὶ γῆς αἲρα καὶ πῦρ ἐνδέχεται μὲν γίνεσθαι, χαλεπώτερον δὲ διὰ τὸ πλειόνων

εἶναι τὴν μεταβολήν· ἀνάγκη γάρ, εἰ ἔσται ἐξ ὕδατος πῦρ, φθαρῆναι καὶ τὸ ψυχρόν καὶ τὸ ὑγρόν, καὶ πάλιν εἰ ἐκ γῆς ἀήρ, φθαρῆναι καὶ τὸ ψυχρόν

10 καὶ τὸ ξηρόν. ὡσαύτως δὲ καὶ εἰ ἐκ πυρὸς καὶ αἲρος ὕδωρ καὶ γῆ, ἀνάγκη ἀμφοτέρα μεταβάλλειν. αὕτη μὲν οὖν χρονιωτέρα ἡ γένεσις· ἐὰν δ' ἑκα-

^a σύμβολα was originally used of two pieces of wood or bone broken away from one another and kept by the two parties to a contract as a means of identification.

COMING-TO-BE AND PASSING-AWAY, II. 4

another,^a but slow when these do not exist, because it is easier for one thing to change than for many ; for example, Air will result from Fire by the change of one quality ; for Fire, as we said, is hot and dry, while Air is hot and moist, so that Air will result if the dry is overpowered by the moist. Again, Water will result from Air, if the hot is overpowered by the cold ; for Air, as we said, is hot and moist, while Water is cold and moist, so that Water will result if the hot undergoes a change. In the same way, too, Earth will result from Water, and Fire from Earth ; for both members of each pair have qualities which correspond to one another, since Water is moist and cold, and Earth is cold and dry, and so, when the moist is overpowered, Earth will result. Again, since Fire is dry and hot, and Earth is cold and dry, if the cold were to pass away, Fire will result from Earth.

It is clear, therefore, that the coming-to-be of simple bodies will be cyclical ; and this manner of change will be very easy, because the corresponding qualities are already present in the elements which are next to one another. The change, however, from Fire to Water and from Air to Earth, and again from Water and Earth to Air and Fire *can* take place, but is more difficult, because the change involves more stages. For if Fire is to be produced from Water, both the cold and the moist must be made to pass-away ; and, again, if Air is to be produced from Earth, both the cold and the dry must be made to pass-away. In like manner, too, if Water and Earth are to be produced from Fire and Air, there must be a change of both qualities. This method of coming-to-be is, therefore, a lengthier process ; but if one

τέρου φθαρῇ θάτερον, ῥάων μὲν, οὐκ εἰς ἄλληλα
 δὲ ἢ μετάβασις, ἀλλ' ἐκ πυρὸς μὲν καὶ ὕδατος
 ἔσται γῆ καὶ ἀήρ, ἐξ ἀέρος δὲ καὶ γῆς πῦρ καὶ
 15 ὕδωρ. ὅταν μὲν γὰρ τοῦ ὕδατος φθαρῇ τὸ ψυχρόν
 τοῦ δὲ πυρὸς τὸ ξηρόν, ἀήρ ἔσται (λείπεται γὰρ
 τοῦ μὲν τὸ θερμὸν τοῦ δὲ τὸ ὑγρόν), ὅταν δὲ τοῦ
 μὲν πυρὸς τὸ θερμὸν τοῦ δ' ὕδατος τὸ ὑγρόν, γῆ
 διὰ τὸ λείπεσθαι τοῦ μὲν τὸ ξηρόν τοῦ δὲ τὸ
 ψυχρόν. ὡσαύτως δὲ καὶ ἐξ ἀέρος καὶ γῆς πῦρ
 20 καὶ ὕδωρ· ὅταν μὲν γὰρ τοῦ ἀέρος φθαρῇ τὸ θερμὸν
 τῆς δὲ γῆς τὸ ξηρόν, ὕδωρ ἔσται (λείπεται γὰρ
 τοῦ μὲν τὸ ὑγρόν τῆς δὲ τὸ ψυχρόν), ὅταν δὲ τοῦ
 μὲν ἀέρος τὸ ὑγρόν τῆς δὲ γῆς τὸ ψυχρόν, πῦρ
 διὰ τὸ λείπεσθαι τοῦ μὲν τὸ θερμὸν τῆς δὲ τὸ ξηρόν,
 ἅπερ ἦν πυρός. ὁμολογουμένη δὲ καὶ τῇ αἰσθήσει
 25 ἡ τοῦ πυρὸς γένεσις· μάλιστα μὲν γὰρ πῦρ ἢ φλόξ,
 αὕτη δ' ἐστὶ καπνὸς καιόμενος, ὁ δὲ καπνὸς ἐξ
 ἀέρος καὶ γῆς.

Ἐν δὲ τοῖς ἐφεξῆς οὐκ ἐνδέχεται φθαρέντος ἐν
 ἑκατέρῳ θατέρου τῶν στοιχείων γενέσθαι μετά-
 βασιν εἰς οὐδὲν τῶν σωμάτων διὰ τὸ λείπεσθαι ἐν
 ἀμφοῖν ἢ ταυτὰ ἢ τὰναντία. ἐξ οὐδετέρων δὲ
 30 ἐγχωρεῖ γίνεσθαι σῶμα, οἷον εἰ τοῦ μὲν πυρὸς
 φθαρείῃ τὸ ξηρόν, τοῦ δ' ἀέρος τὸ ὑγρόν· λείπεται
 γὰρ ἐν ἀμφοῖν τὸ θερμόν· ἐὰν δ' ἐξ ἑκατέρου τὸ
 θερμόν, λείπεται τὰναντία, ξηρόν καὶ ὑγρόν.

^a i.e. those which pass into one another by the "cyclical" process described in 331 b 2 ff.

COMING-TO-BE AND PASSING-AWAY, II. 4

quality of each element were to be made to pass away, the change will be easier but not reciprocal ; but from Fire and Water will come Earth and (alternatively) Air, and from Air and Earth Fire and (alternatively) Water ; for when the cold of the Water and the dryness of the Fire have passed-away, there will be Air (for the heat of the Fire and the moisture of the Water are left), but, when the heat of the Fire and the moisture of the Water have passed-away, there will be Earth, because the dryness of the Fire and the cold of the Water are left. In the same manner also Fire and Water will result from Air and Earth ; for when the heat of the Air and the dryness of the Earth pass-away, there will be Water (for the moisture of the Air and the cold of the Earth are left), but when the moisture of the Air and the cold of the Earth have passed-away, there will be Fire, because the heat of the Air and the dryness of the Earth, which are, as we saw, the constituents of Fire, are left. Now the manner in which Fire comes-to-be is confirmed by our sense-perception ; for flame is the most evident form of Fire, and flame is burning smoke, and smoke is composed of Air and Earth.

No change, however, into any of the bodies can take place from the passing-away of one of the elements in each of them taken in their consecutive order,^a because either the same or the contrary qualities are left in the pair, and a body cannot come-to-be out of identical or contrary qualities ; for example, it would not result if the dryness of Fire and the moisture of the Air were to pass-away (for the heat is left in both), but, if the heat passes-away from both, the contraries, dryness and moisture, are

331 b

ὁμοίως δὲ καὶ ἐν τοῖς ἄλλοις· ἐν ἅπασιν γὰρ τοῖς
 ἐφεξῆς ἐνυπάρχει τὸ μὲν ταῦτὸ τὸ δ' ἐναντίον.
 35 ὥσθ' ἅμα δῆλον ὅτι τὰ μὲν ἐξ ἑνὸς εἰς ἓν μετα-
 βαίνοντα ἑνὸς φθαρέντος γίνεται, τὰ δ' ἐκ δυοῖν
 332 a εἰς ἓν πλειόνων. ὅτι μὲν οὖν ἅπαντα ἐκ παντὸς
 γίνεται, καὶ τίνα τρόπον εἰς ἄλληλα μετάβασις
 γίνεται, εἴρηται.

5. Οὐ μὴν ἄλλ' ἔτι καὶ ὧδε θεωρήσωμεν περὶ
 αὐτῶν. εἰ γὰρ ἐστὶ τῶν φυσικῶν σωμάτων ὕλη,
 5 ὥσπερ καὶ δοκεῖ ἐνίοις, ὕδωρ καὶ ἀήρ καὶ τὰ
 τοιαῦτα, ἀνάγκη ἦτοί ἐν ἧ δύο εἶναι ταῦτα ἢ πλείω.
 ἐν μὲν δὴ πάντα οὐχ οἶόν τε, οἶον ἀέρα πάντα ἢ
 ὕδωρ ἢ πῦρ ἢ γῆν, εἴπερ ἡ μεταβολὴ εἰς τὰναντία.
 εἰ γὰρ εἴη ἀήρ, εἰ μὲν ὑπομένει, ἀλλοιώσεις ἔσται
 ἄλλ' οὐ γένεσις. ἅμα δ' οὐδ' οὕτω δοκεῖ, ὥστε
 10 ὕδωρ εἶναι ἅμα καὶ ἀέρα ἢ ἄλλ' ὅτιοῦν. ἔσται δὴ
 τις ἐναντίωσις καὶ διαφορὰ ἧς ἔξει τι θάτερον
 μόριον τὸ πῦρ οἶον θερμότητα. ἀλλὰ μὴν οὐκ
 ἔσται τό γε πῦρ ἀήρ θερμός· ἀλλοιώσεις τε γὰρ τὸ
 τοιοῦτον, καὶ οὐ φαίνεται. ἅμα δὲ πάλιν εἰ ἔσται
 15 ἐκ πυρὸς ἀήρ, τοῦ θερμοῦ εἰς τοῦναντίον μετα-
 βάλλοντος ἔσται. ὑπάρξει ἄρα τῷ ἀέρι τοῦτο,
 καὶ ἔσται ὁ ἀήρ ψυχρόν τι. ὥστε ἀδύνατον τὸ
 πῦρ ἀέρα θερμὸν εἶναι· ἅμα γὰρ τὸ αὐτὸ θερμὸν

^a See *Phys.* 224 a 21 ff.

left. So likewise with the others too ; for in all the consecutive elements there exists one identical and one contrary quality. It is, therefore, at the same time clear that some elements come-to-be by being transformed from one into one by the passing-away of one quality, but others come-to-be by being transformed from two into one by the passing-away of more than one quality. We have now stated that all the elements come-to-be from any one of them, and how their change into one another takes place.

5. Let us, however, proceed to discuss the following points about them. If Water, Air and the like are, as some people hold, matter for the natural bodies, there must be either one or two or more than two of them. Now they cannot all of them be *one* (for example, they cannot all be Air or Water or Fire or Earth), because change is into contraries.^a For if they were all Air, then, if Air continues to exist, "alteration" will take place and not coming-to-be. Furthermore, no one holds that Water is at the same time also Air or any other element. There will, then, be a contrariety (or difference),^b and the other member of this contrariety will belong to some other element, for example, heat will belong to Fire. Fire, however, will certainly not be "hot air" ; for such a change is an "alteration" and also is not observed to happen. Another reason, too, is that, if Air is to be produced from Fire, it will be due to the changing of heat into its contrary. This contrary, therefore, will belong to Air, and Air will be something cold ; hence it is impossible for Fire to be "hot air," for, in that case,

Restate-
ment of the
doctrine of
chapter 4,
and addi-
tional
evidence.

^a *e.g.*, if Air is to alter into Fire, we must assign one of a pair of contrary qualities to Air and the other to Fire.

332_a

καὶ ψυχρὸν ἔσται. ἄλλο τι ἄρ' ἀμφότερα τὸ αὐτὸ
ἔσται, καὶ ἄλλη τις ὕλη κοινή.

‘Ο δ’ αὐτὸς λόγος περὶ ἀπάντων, ὅτι οὐκ ἔστιν
20 ἐν τούτων ἐξ οὗ τὰ πάντα. οὐ μὴν οὐδ’ ἄλλο τί
γε παρὰ ταῦτα, οἷον μέσον τι ἀέρος καὶ ὕδατος ἢ
ἀέρος καὶ πυρός, ἀέρος μὲν παχύτερον καὶ πυρός,
τῶν δὲ λεπτότερον· ἔσται γὰρ ἀήρ καὶ πῦρ ἐκείνο
μετ’ ἐναντιότητος· ἀλλὰ στέρησις τὸ ἕτερον τῶν ἐν-
αντίων· ὥστ’ οὐκ ἐνδέχεται μονοῦσθαι ἐκείνο οὐδέ-
25 ποτε, ὥσπερ φασί τινες τὸ ἄπειρον καὶ τὸ περιέχον.
ὁμοίως ἄρα ὁτιοῦν τούτων ἢ οὐδέν.

Εἰ οὖν μηδὲν αἰσθητόν γε πρότερον τούτων, ταῦ-
τα ἂν εἴη πάντα. ἀνάγκη τοίνυν ἢ αἰεὶ μένοντα καὶ
ἀμετάβλητα εἰς ἄλληλα, ἢ μεταβάλλοντα, καὶ ἢ
ἅπαντα, ἢ τὰ μὲν τὰ δ’ οὐ, ὥσπερ ἐν τῷ Τιμαίῳ
30 Πλάτων ἔγραψεν. ὅτι μὲν τοίνυν μεταβάλλειν
ἀνάγκη εἰς ἄλληλα, δέδεικται πρότερον· ὅτι δ’ οὐχ
ὁμοίως ταχέως ἄλλο ἐξ ἄλλου, εἴρηται πρότερον,
ὅτι τὰ μὲν ἔχοντα σύμβολον θάπτον γίνεται ἐξ
ἀλλήλων, τὰ δ’ οὐκ ἔχοντα βραδύτερον. εἰ μὲν
τοίνυν ἢ ἐναντιότης μία ἐστὶ καθ’ ἣν μεταβάλ-
35 λουσιν, ἀνάγκη δύο εἶναι· ἢ γὰρ ὕλη τὸ μέσον

^a Aristotle's *πρώτη ὕλη*.

^b *i.e.* without having some quality attached to it.

^c This was the doctrine of Anaximander.

^d The “boundless” cannot exist without being qualified by a contrary; if it is qualified by a contrary, it is one of the elements.

^e *i.e.* there can be no simple bodies but Earth, Air, Fire and Water. ^f *Timaeus* 54 v-v. ^g 331 a 12 ff.

^h See 331 a 23 ff. and note.

the same thing will be hot and cold. Both Fire and Air will, therefore, be something else which is the same, that is, there will be some other "matter" ^a which is common to both.

The same argument holds good of all the elements and shows that there is no single one of them from which all are derived. Yet neither is there anything other than these from which they come, for example, an intermediate between air and water (coarser than Air, but finer than Water) or between Air and Fire (coarser than Fire, but finer than Air). For the intermediate will be Air and Fire with the addition of a pair of contraries ; but one of the contraries will be a privation, so that it is impossible for the intermediate to exist by itself,^b as some people ^c declare that the "boundless" or "all-embracing" exists ; it is, therefore, one of the elements (it does not matter which), or nothing.^d

If, therefore, there is nothing—nothing perceptible at any rate—prior to the four elements, these must be all that there are ^e ; it follows, therefore, necessarily, that they must either persist and be unable to change into one another, or they must undergo change, either all of them or some of them only, as Plato wrote in the *Timæus*.^f Now it has been shown above ^g that they must change into one another ; and it has previously been stated that they do not come-to-be equally quickly from one another, because elements which have a corresponding quality ^h come-to-be more quickly out of one another, while those which have not this do so more slowly. If, therefore, the contrariety, in virtue of which they change, is *one*, the elements must be two ; for the matter, which is imperceptible and inseparable, is the intermediate

332 b ἀναίσθητος οὔσα καὶ ἀχώριστος. ἐπεὶ δὲ πλείω
 ὁράται ὄντα, δύο ἂν εἶεν αἱ ἐλάχισται. δύο δ'
 ὄντων οὐχ οἷόν τε τρία εἶναι, ἀλλὰ τέσσαρα, ὥσ-
 περ φαίνεται· τοσαῦται γὰρ αἱ συζυγίαι· ἕξ γὰρ
 οὐσῶν τὰς δύο ἀδύνατον γενέσθαι διὰ τὸ ἐναντίας
 5 εἶναι ἀλλήλαις.

Περὶ μὲν οὖν τούτων εἴρηται πρότερον· ὅτι δ'
 ἐπειδὴ μεταβάλλουσιν εἰς ἄλληλα, ἀδύνατον ἀρχήν
 τινα εἶναι αὐτῶν ἢ ἐπὶ τῷ ἄκρῳ ἢ μέσῳ, ἐκ τῶνδε
 δηλόν. ἐπὶ μὲν οὖν τοῖς ἄκροις οὐκ ἔσται, ὅτι
 πῦρ ἔσται ἢ γῆ πάντα· καὶ ὁ αὐτὸς λόγος τῷ φάναι
 10 ἐκ πυρὸς ἢ γῆς εἶναι πάντα· ὅτι δ' οὐδὲ μέσον,
 ὥσπερ δοκεῖ τισὶν ἀήρ μὲν καὶ εἰς πῦρ μεταβάλλειν
 καὶ εἰς ὕδωρ, ὕδωρ δὲ καὶ εἰς ἀέρα καὶ εἰς γῆν,
 τὰ δ' ἔσχατα οὐκέτι εἰς ἄλληλα ἐκ τῶνδε δηλόν¹.
 δεῖ μὲν γὰρ στήναι καὶ μὴ εἰς ἄπειρον τοῦτο ἵέναι
 ἐπ' εὐθείας ἐφ' ἐκάτερα· ἄπειροι γὰρ αἱ ἐναντιό-
 15 τητες ἐπὶ τοῦ ἐνὸς ἔσσονται. γῆ ἐφ' ᾧ Γ, ὕδωρ
 ἐφ' ᾧ Υ, ἀήρ ἐφ' ᾧ Α, πῦρ ἐφ' ᾧ Β. εἰ δὴ τὸ Α
 μεταβάλλει εἰς τὸ Β καὶ Υ, ἐναντιότης ἔσται τῶν
 ΑΒ. ἔστω ταῦτα λευκότης καὶ μελανία. πάλιν
 εἰ εἰς τὸ Υ τὸ Α, ἔσται ἄλλη· οὐ γὰρ ταῦτὸ τὸ Υ
 καὶ Β. ἔστω δὲ ξηρότης καὶ ὑγρότης, τὸ μὲν
 20 Ξ ξηρότης, τὸ δὲ Υ ὑγρότης. οὐκοῦν εἰ μὲν μένει
 τὸ λευκόν, ὑπάρξει τὸ ὕδωρ ὑγρὸν καὶ λευκόν, εἰ
 δὲ μή, μέλαν ἔσται τὸ ὕδωρ· εἰς τὰναντία γὰρ ἢ
 μεταβολή. ἀνάγκη ἄρα ἢ λευκὸν ἢ μέλαν εἶναι

¹ ἐκ τῶνδε δηλόν add. Joachim.

between them. But since the elements are seen to be more than two, the contrarieties would be at least two; but if the latter are two, the elements cannot be three but must be four, as is evidently the case; for the couples are of that number, since, though six are possible, two of these cannot occur because they are contrary to one another.

These matters have been dealt with before,^a but that, when the elements change into one another, it is impossible for any one of them, whether at the end or in the middle of the series, to be a "source" is clear from the following considerations. There will be no "source" at the ends, since they will all be Fire or Earth; and this is the same as arguing that all things are derived from Fire or Earth. That the "source" cannot be in the middle either—as some people hold that Air changes both into Fire and into Water, and Water both into Air and into Earth, while the end-elements are not further changed into one another—is clear from these considerations. There must be a halt, and the process cannot continue in either direction in a straight line to infinity; for, otherwise, the number of contrarieties belonging to a single element will be infinite. Let E stand for Earth, W for Water, A for Air and F for Fire. Then (a), if A changes into F and W, there will be a contrariety attaching to AF. Let this contrariety be whiteness and blackness. Again (b), if A changes into W, there will be another contrariety; for W is not the same as F. Let this contrariety be dryness (D) and moisture (M). If, then, the whiteness persists, Water will be moist and white; if not, Water will be black, for change is into contraries. Water, therefore, must be either white or black. Let it, then, be the

332 b

τὸ ὕδωρ. ἔστω δὴ τὸ πρῶτον. ὁμοίως τοίνυν
καὶ τῷ Π τὸ Ξ ὑπάρξει ἡ ξηρότης. ἔσται ἄρα
25 καὶ τῷ Π τῷ πυρὶ μεταβολὴ εἰς τὸ ὕδωρ· ἐναντία
γὰρ ὑπάρχει· τὸ μὲν γὰρ πῦρ τὸ πρῶτον μέλαν ἦν,
ἔπειτα δὲ ξηρόν, τὸ δ' ὕδωρ ὑγρόν, ἔπειτα δὲ
λευκόν. φανερόν δὴ ὅτι πᾶσιν ἐξ ἀλλήλων ἔσται
ἡ μεταβολή, καὶ ἐπὶ γε τούτων, ὅτι καὶ ἐν τῷ Γ
τῇ γῇ ὑπάρξει τὰ λοιπὰ καὶ δύο σύμβολα, τὸ
30 μέλαν καὶ τὸ ὑγρόν· ταῦτα γὰρ οὐ συνδεδύασταί
πως.

Ὅτι δ' εἰς ἄπειρον οὐχ οἷόν τ' ἵέναι, ὅπερ μελ-
λήσαντες δείξειν ἐπὶ τοῦτο ἔμπροσθεν ἤλθομεν, δῆ-
λον ἐκ τῶνδε. εἰ γὰρ πάλιν τὸ πῦρ, ἐφ' ᾧ Π, εἰς
ἄλλο μεταβαλεῖ καὶ μὴ ἀνακάμψῃ, οἷον εἰς τὸ Ψ,
ἐναντιότης τις τῷ πυρὶ καὶ τῷ Ψ ἄλλη ὑπάρξει
35 τῶν εἰρημένων· οὐδενὶ γὰρ τὸ αὐτὸ ὑπόκειται τῶν
333 a Γ Υ Α Π τὸ Ψ. ἔστω δὴ τῷ μὲν Π τὸ Κ, τῷ δὲ
Ψ τὸ Φ. τὸ δὴ Κ πᾶσιν ὑπάρξει τοῖς Γ Υ Α Π·
μεταβάλλουσι γὰρ εἰς ἄλληλα. ἀλλὰ γὰρ τοῦτο
μὲν ἔστω μήπω δεδειγμένον· ἀλλ' ἐκεῖνο δῆλον,
5 ὅτι εἰ πάλιν τὸ Ψ εἰς ἄλλο, ἄλλη ἐναντιότης καὶ
τῷ Ψ ὑπάρξει καὶ τῷ πυρὶ τῷ Π. ὁμοίως δ'
ἀεὶ μετὰ τοῦ προστιθεμένου ἐναντιότης τις ὑπάρξει
τοῖς ἔμπροσθεν, ὥστ' εἰ ἄπειρα, καὶ ἐναντιότητες
ἄπειροι τῷ ἐνὶ ὑπάρξουσιν. εἰ δὲ τοῦτο, οὐκ ἔσται
οὔτε ὀρίσασθαι οὐδὲν οὔτε γενέσθαι· δεήσει γάρ,
εἰ ἄλλο ἔσται ἐξ ἄλλου, τοσαύτας διεξελεθεῖν ἐν-
10 αντιότητας, καὶ ἔτι πλείους, ὥστ' εἰς ἓν μὲν

first of these. Similarly, D will also belong to F; therefore a change into Water will be possible also for Fire (F); for it has qualities which are contrary to those of Water, since Fire was first black and then dry, while Water was first moist and then white. It is clear, then, that the change of all the elements from one another will be possible, and that, in the above examples, E (Earth) will possess also the two remaining "corresponding qualities," blackness and moisture (for these have not yet been in any way coupled together).

That the process cannot go on to infinity—which was the thesis that we were about to prove when we digressed to the above discussion—will be clear from the following considerations. If Fire (F) is to change in turn into something else and not to revert again, for example into Z, another contrariety other than those already mentioned will belong to Fire and Z; for it has been laid down that Z is not the same as any of the four, E, W, A and F. Let K belong to F, and Φ to Z; then K will belong to EWA Φ ; for they change into one another. But, let us admit that this has not yet been demonstrated; yet this is evident that, if Z in turn is to be changed into another element, another contrariety will belong both to Z and also to Fire (F). Similarly, with each addition which is made, a fresh contrariety will attach to the preceding elements of the series, so that if the elements are infinite in number, infinitely numerous contraries will also attach *to the single element*. But if this is the case, it will be impossible to define any element and for any element to come-to-be. For if one is to result from another, it will have to pass through so many contraries and then through still more. Therefore (a), change into some elements

οὐδέποτ' ἔσται μεταβολή, οἷον εἰ ἄπειρα τὰ μεταξύ·
 ἀνάγκη δ', εἴπερ ἄπειρα τὰ στοιχεῖα· ἔτι δ' οὐδ'
 ἐξ ἀέρος εἰς πῦρ, εἰ ἄπειροι αἱ ἐναντιότητες. γίνε-
 ται δὲ καὶ πάντα ἔν· ἀνάγκη γὰρ πάσας ὑπάρχειν
 τοῖς μὲν κάτω τοῦ Π τὰς τῶν ἄνωθεν, τούτοις δὲ
 15 τὰς τῶν κάτωθεν, ὥστε πάντα ἔν ἔσται.

6. Θαυμάσειε δ' ἂν τις τῶν λεγόντων πλείω
 ἑνὸς τὰ στοιχεῖα τῶν σωμάτων ὥστε μὴ μετα-
 βάλλειν εἰς ἄλληλα, καθάπερ Ἑμπεδοκλῆς φησί,
 πῶς ἐνδέχεται λέγειν αὐτοῖς εἶναι συμβλητὰ τὰ
 20 στοιχεῖα. καίτοι λέγει οὕτω· “ ταῦτα γὰρ ἴσα τε
 πάντα.” εἰ μὲν οὖν κατὰ τὸ ποσόν, ἀνάγκη ταυτό-
 τι εἶναι ὑπάρχον ἅπασι τοῖς συμβλητοῖς ὧ με-
 τροῦνται, οἷον εἰ ἐξ ὕδατος κοτύλης εἶεν ἀέρος
 δέκα· τὸ αὐτό τι ἦν ἄρα ἄμφω, εἰ μετρεῖται τῷ
 αὐτῷ. εἰ δὲ μὴ οὕτω κατὰ τὸ ποσόν συμβλητὰ
 25 ὡς ποσὸν ἐκ ποσοῦ, ἀλλ' ὅσον δύναται, οἷον εἰ
 κοτύλη ὕδατος ἴσον δύναται ψύχειν καὶ δέκα ἀέρος,
 καὶ οὕτως κατὰ τὸ ποσὸν οὐχ ἧ ποσὸν συμβλητά,
 ἀλλ' ἧ δύνανται τι. εἴη δ' ἂν καὶ μὴ τῷ τοῦ πο-
 σοῦ μέτρῳ συμβάλλεσθαι τὰς δυνάμεις, ἀλλὰ κατ'
 ἀναλογίαν, οἷον ὡς τόδε λευκὸν τόδε θερμόν. τὸ
 30 δ' ὡς τόδε σημαίνει ἐν μὲν ποιῶ τὸ ὅμοιον, ἐν δὲ
 ποσῷ τὸ ἴσον. ἄτοπον δὴ φαίνεται, εἰ τὰ σώματα
 ἀμετάβλητα ὄντα μὴ ἀναλογία συμβλητά ἐστίν,

^a Fr. 17 line 27 (Diels).

^b i.e. if one element is as hot as another is white, they have
 “by analogy” the same amount, one of heat, the other of
 whiteness.

COMING-TO-BE AND PASSING-AWAY, II. 5-6

will never take place, for instance, if the intermediates are infinite in number (and they must be so if the elements are infinite): and further (*b*), there will not even be a change from Air into Fire, if the contrarieties are infinitely many: and (*c*) all the elements become one, for all the contrarieties of the elements above F must belong to those below F, and *vice versa*; they will all, therefore, be one.

6. One may well express astonishment at those who, like Empedocles, declare that the elements of bodies are more than one (and, therefore, do not change into one another), and ask them how they can assert that the elements are comparable. Yet Empedocles says,^a "For these are all not only equal. . . ." Now (*a*) if what is meant is that they are equal in amount, all the "comparables" must all possess something identical by means of which they are measured, if, for instance one pint of Water is equivalent to ten pints of Air, in which case both have always had something identical about them, since they were measured by the same standard. But (*b*) if they are not comparable in amount (in the sense that so much of the one is produced from so much of the other), but in power (for instance, if a pint of water and ten pints of air have an equal cooling power), even so they *are* comparable in amount, though not *qua* amount, but *qua* so much power. And (*c*) it would be possible also to compare their power not by the measure of quantity, but by an "analogy": for example, "as X is hot, so Y is white."^b But "analogy," while it signifies similarity in quality, signifies equality in quantity. Now it is obviously absurd that the bodies, though unchangeable, are comparable not merely by "analogy," but by the

Examination and refutation of the theory of Empedocles, who maintained that his four elements could not be transformed into one another.

333 a

ἀλλὰ μέτρῳ τῶν δυνάμεων καὶ τῷ εἶναι ἴσως¹
θερμὸν ἢ ὁμοίως² πυρὸς τοσονδὶ καὶ ἀέρος πολλα-
πλάσιον· τὸ γὰρ αὐτὸ πλείον τῷ ὁμογενὲς εἶναι
τοιούτον ἔξει τὸν λόγον.

35 Ἀλλὰ μὴν οὐδ' αὔξησις ἂν εἴη κατ' Ἐμπε-

333 b δοκλέα, ἀλλ' ἢ κατὰ πρόσθεσιν· πυρὶ γὰρ αὔξει
τὸ πῦρ· “ αὔξει δὲ χθῶν μὲν σφέτερον δέμας,³
αἰθέρα δ' αἰθήρ.” ταῦτα δὲ προστίθεται· δοκεῖ
δ' οὐχ οὕτως αὔξεσθαι τὰ αὐξανόμενα. πολὺ δὲ
χαλεπώτερον ἀποδοῦναι περὶ γενέσεως τῆς κατὰ
5 φύσιν. τὰ γὰρ γινόμενα φύσει πάντα γίνεται ἢ
ἀεὶ ὡδὶ ἢ ὡς ἐπὶ τὸ πολὺ, τὰ δὲ παρὰ τὸ ἀεὶ καὶ
ὡς ἐπὶ τὸ πολὺ ἀπὸ ταυτομάτου καὶ ἀπὸ τύχης.
τί οὖν τὸ αἷτιον τοῦ ἐξ ἀνθρώπου ἄνθρωπον ἢ ἀεὶ
ἢ ὡς ἐπὶ τὸ πολὺ, καὶ ἐκ τοῦ πυροῦ πυρὸν ἀλλὰ
μὴ ἐλαίαν; ἢ καί, ἐὰν ὡδὶ συντεθῇ, ὅστουν; οὐ
10 γὰρ ὅπως ἔτυχε συνελθόντων οὐδὲν γίνεται, καθ' ἃ⁴
ἐκεῖνός φησιν, ἀλλὰ λόγῳ τινί. τί οὖν τούτων
αἷτιον; οὐ γὰρ δὴ πῦρ γε ἢ γῆ. ἀλλὰ μὴν οὐδ'
ἢ φιλία καὶ τὸ νεῖκος· συγκρίσεως γὰρ μόνον, τὸ
δὲ διακρίσεως αἷτιον. τοῦτο δ' ἐστὶν ἡ οὐσία ἢ
ἐκάστου, ἀλλ' οὐ μόνον “ μίξις τε διάλλαξις τε
15 μιγέντων,” ὥσπερ ἐκεῖνός φησιν. τύχη δ' ἐπὶ
τούτων ὀνομάζεται, ἀλλ' οὐ λόγος· ἔστι γὰρ μι-
χθῆναι ὡς ἔτυχεν. τῶν δὴ φύσει ὄντων αἷτιον

¹ ἴσως : ἴσον codd.

² ὁμοίως E : ὁμοιον FHL.

³ δέμας H : γένος EFL.

⁴ καθά EHL : καθάπερ F.

COMING-TO-BE AND PASSING-AWAY, II. 6

measure of their powers ; that is, that so much Fire and many times as much Air are comparable because they are equally or similarly hot. For the same thing, if greater in amount, will, by being of the same kind, have its ratio increased correspondingly.

Further, according to Empedocles, growth, too, would be impossible except by addition : for in his view Fire increases by Fire and " Earth increases its own body, and ether increases ether," ^a and these are additions ; and it is not generally held that things which increase do so in this way. And it is much more difficult for him to give an account of coming-to-be by a natural process. For the things which come-to-be naturally all come-to-be, either always or generally, in a particular way, and exceptions or violations of the invariable or general rule are the results of chance and luck. What, then, is the reason why man always or generally comes-to-be from man, and why wheat (and not an olive) comes-to-be from wheat ? Or does bone come-to-be, if the elements are put together in a certain manner ? For, according to Empedocles, nothing comes-to-be by their coming together by chance but by their coming together in a certain proportion. What, then, is the cause of this ? It is certainly not Fire or Earth ; but neither is it Love and Strife, for the former is a cause of " association " only and the latter of dissociation only. No : the cause is the substance of each thing and not merely, as he says, " a mingling and separation of things mingled " ^b ; and chance, not proportion, is the name applied to these happenings : for it is possible for things to be mixed by chance. The cause, then, of things which exist naturally is that they are in

^b Empedocles, fr. 8 (Diels) ; see also above, 314 b 7 f.

333 b

τὸ οὕτως ἔχειν, καὶ ἡ ἐκάστου φύσις αὕτη, περὶ
 ἧς οὐδὲν λέγει. οὐδὲν ἄρα περὶ φύσεως λέγει.
 ἀλλὰ μὴν καὶ τὸ εὖ τοῦτο καὶ ἀγαθόν· ὁ δὲ τὴν
 20 μίξιν μόνον ἐπαινεῖ. καίτοι τά γε στοιχεῖα δια-
 κρίνει οὐ τὸ νεῖκος, ἀλλ' ἡ φιλία τὰ φύσει πρότερα
 τοῦ θεοῦ· θεοὶ δὲ καὶ ταῦτα.

Ἔτι δὲ περὶ κινήσεως ἀπλῶς λέγει· οὐ γὰρ
 ἱκανὸν εἰπεῖν διότι ἡ φιλία καὶ τὸ νεῖκος κινεῖ, εἰ
 μὴ τοῦτ' ἦν φιλία εἶναι τὸ κινήσει τοιαδί, νείκει
 25 δὲ τὸ τοιαδί. ἔδει οὖν ἢ ὀρίσασθαι ἢ ὑποθέσθαι
 ἢ ἀποδείξαι, ἢ ἀκριβῶς ἢ μαλακῶς, ἢ ἄλλως γέ-
 πως. ἔτι δ' ἐπεὶ φαίνεται καὶ βία καὶ παρὰ φύσιν
 κινούμενα τὰ σώματα, καὶ κατὰ φύσιν (οἷον τὸ
 πῦρ ἄνω μὲν οὐ βία, κάτω δὲ βία), τῷ δὲ βία τὸ
 κατὰ φύσιν ἐναντίον, ἔστι δὲ τὸ βία, ἔστιν ἄρα
 30 καὶ τὸ κατὰ φύσιν κινεῖσθαι. ταύτην οὖν ἡ φιλία
 κινεῖ, ἢ οὐ; τοῦναντίον γὰρ τὴν γῆν κάτω¹ καὶ
 διακρίσει ἔοικεν· καὶ μᾶλλον τὸ νεῖκος αἴτιον τῆς
 κατὰ φύσιν κινήσεως ἢ ἡ φιλία. ὥστε καὶ ὅλως
 παρὰ φύσιν ἡ φιλία ἂν εἴη μᾶλλον. ἀπλῶς δὲ εἰ
 μὴ ἡ φιλία ἢ τὸ νεῖκος κινεῖ, αὐτῶν τῶν σωμάτων
 35 οὐδεμία κίνησις ἐστίν οὐδὲ μονή. ἀλλ' ἄτοπον.
 334 a ἔτι δὲ καὶ φαίνεται κινούμενα· διέκρινε μὲν γὰρ
 τὸ νεῖκος, ἠνέχθη δ' ἄνω ὁ αἰθὴρ οὐχ ὑπὸ τοῦ
 νείκους, ἀλλ' ὅτε μὲν φησιν ὥσπερ ἀπὸ τύχης

¹ κάτω EH : ἄνω FL.

^a Although it is entitled περὶ Φύσεως.

^b i.e. natural motion.

COMING-TO-BE AND PASSING-AWAY, II. 6

such and-such a condition, and this is what constitutes the nature of each thing, about which he says nothing. There is nothing "About the Nature of Things" in his treatise.^a And yet it is this which is the excellence and the good of each thing, whereas he gives all the credit to the mixing process. (Yet it is not Strife but Love that dissociates the elements which are by nature prior to God, and they are also gods.)

Further, his account of motion is superficial. For it is not enough to say that Love and Strife move things, unless Love has been given a certain faculty of movement and Strife a certain other. He should, then, have either defined or laid down or demonstrated their powers of movement either accurately or loosely, or at any rate in some manner. Furthermore, since the bodies are seen to move by compulsion (that is, unnaturally) and also naturally (for example, Fire moves upwards without compulsion, but downwards by compulsion), and that which is natural is contrary to that which is by compulsion, and movement by compulsion actually occurs, it follows that natural motion also occurs. Is this, then, the motion which Love sets going, or not? No: for, on the contrary, it^b moves the Earth downwards and resembles "dissociation," and Strife rather than Love is the cause of natural motion; and so, generally speaking, Love rather than Strife would be contrary to nature, and unless Love or Strife is actually setting them in motion, the simple bodies themselves have no motion or rest at all. But this is strange; and, moreover, they are actually seen to move. For although Strife caused dissociation, it was not by Strife that the ether was carried upwards, but at one time Empedocles talks as if it were due to chance,

334 a

(“ οὕτω γὰρ συνέκυρσε θεῶν τότε, πολλάκι δ’ ἄλλως ”), ὅτε δέ φησι πεφυκέναι τὸ πῦρ ἄνω
 5 φέρεσθαι, ὃ δ’ αἰθήρ, φησί, “ μακρῇσι κατὰ χθόνα
 δύετο ρίζαις.” ἅμα δὲ καὶ τὸν κόσμον ὁμοίως
 ἔχειν φησὶν ἐπὶ τε τοῦ νείκουσ νῦν καὶ πρότερον
 ἐπὶ τῆς φιλίας. τί οὖν ἐστὶ τὸ κινεῖν πρῶτον καὶ
 αἷτιον τῆς κινήσεως; οὐ γὰρ δὴ ἡ φιλία καὶ τὸ
 νείκος, ἀλλὰ τινος κινήσεως ταῦτα αἷτια, εἴ ἐστιν¹
 ἐκείνο ἀρχή.

- 10 Ἄτοπον δὲ καὶ εἰ ἡ ψυχὴ ἐκ τῶν στοιχείων ἢ
 ἔν τι αὐτῶν· αἱ γὰρ ἀλλοιώσεις αἱ τῆς ψυχῆς πῶς
 ἔσονται, οἷον τὸ μουσικὸν εἶναι καὶ πάλιν ἄμουσον,
 ἢ μνήμη ἢ λήθη; δῆλον γὰρ ὅτι εἰ μὲν πῦρ ἢ
 ψυχὴ, τὰ πάθη ὑπάρξει αὐτῇ ὅσα πυρὶ ἢ πῦρ· εἰ
 δὲ μικτόν, τὰ σωματικά· τούτων δ’ οὐδὲν σωμα-
 15 τικόν.

7. Ἀλλὰ περὶ μὲν τούτων ἐτέρας ἔργον ἐστὶ
 θεωρίας. περὶ δὲ τῶν στοιχείων ἐξ ὧν τὰ σώματα
 συνέστηκεν, ὅσοις μὲν δοκεῖ τι εἶναι κοινὸν ἢ μετα-
 βάλλειν εἰς ἄλληλα, ἀνάγκη εἰ θάτερον τούτων,
 καὶ θάτερον συμβαίνειν· ὅσοι δὲ μὴ ποιοῦσιν ἐξ
 ἀλλήλων γένεσιν μηδ’ ὥς ἐξ ἐκάστου, πλὴν ὥς ἐκ
 20 τοίχου πλίνθους, ἄτοπον πῶς ἐξ ἐκείνων ἔσονται
 σάρκες καὶ ὀστέα καὶ τῶν ἄλλων ὅτιοῦν. ἔχει δὲ
 τὸ λεγόμενον ἀπορίαν καὶ τοῖς ἐξ ἀλλήλων γεν-

¹ εἴ ἐστι E H J : ἔστιν I' : εἰ δ' ἔστι.

^a Fr. 53 (Diels).

^b Fr. 54 (Diels).

COMING-TO-BE AND PASSING-AWAY, II. 6-7

saying, "For thus in its rush it encountered them then, but oft-times in other wise,"^a whereas on another occasion he says that it is the nature of Fire to be borne upwards, and ether, he says, "sank with long roots into the Earth."^b At the same time he also says that the Earth is in the same condition now under the rule of Strife as it was formerly under that of Love. What, then, is the "prime mover" and cause of motion? It certainly is not Love and Strife; but these are the causes of a secondary motion, if the "prime mover" is the original source.

It is also strange that the soul should consist of the elements or be one of them; for how, then, will the "alterations" in the soul take place? How, for example, could the change from being musical to being unmusical occur, or could memory or forgetfulness occur? For evidently, if the soul is Fire, only such effects will be produced upon it as can be produced by Fire *qua* Fire; whereas, if it is a mixture of elements, only the corporeal effects will be produced; but no one of these effects is corporeal.

7. The discussion, however, of these questions is the task of another investigation. But, as regards the elements of which bodies are composed, those who think that they all have something in common or that they change into each other, if they hold one of these views, must necessarily hold the other. For those, on the other hand, who do not make them come-to-be out of each other nor one from another taken singly (except in the sense that bricks come-to-be out of a wall), there is the paradox as to how flesh and bones and any of the other compounds will result from the elements. This suggestion involves a difficulty also for those who generate the elements

How single bodies are combined to form compounds.

334 a

νῶσιν, τίνα τρόπον γίνεται ἐξ αὐτῶν ἕτερόν τι
 παρ' αὐτά. λέγω δ' οἶον ἔστιν ἐκ πυρὸς ὕδωρ
 καὶ ἐκ τούτου γίνεσθαι πῦρ· ἔστι γάρ τι κοινὸν
 25 τὸ ὑποκείμενον. ἀλλὰ δὴ καὶ σὰρξ ἐξ αὐτῶν
 γίνεται καὶ μυελός· ταῦτα δὴ γίνεται πῶς; ἐκεί-
 νοις τε γὰρ τοῖς λέγουσιν ὡς Ἐμπεδοκλῆς τίς
 ἔσται τρόπος; ἀνάγκη γὰρ σύνθεσιν εἶναι καθάπερ
 ἐκ πλίνθων καὶ λίθων τοίχος· καὶ τὸ μίγμα δὲ
 τοῦτο ἐκ σωζομένων μὲν ἔσται τῶν στοιχείων,
 30 κατὰ μικρὰ δὲ παρ' ἄλληλα συγκειμένων. οὕτω
 δὴ σὰρξ καὶ τῶν ἄλλων ἕκαστον. συμβαίνει δὴ
 μὴ ἐξ ὅτουοῦν μέρους σαρκὸς γίνεσθαι πῦρ καὶ
 ὕδωρ, ὥσπερ ἐκ κηροῦ γένοιτ' ἂν ἐκ μὲν τουδὶ
 τοῦ μέρους σφαῖρα, πυραμὶς δ' ἐξ ἄλλου τινός·
 ἀλλ' ἐνεδέχετό γε ἐξ ἐκατέρου ἐκάτερον γενέσθαι.
 35 τοῦτο μὲν δὴ τοῦτον γίνεται τὸν τρόπον ἐκ τῆς

334 b σαρκὸς ἐξ ὅτουοῦν ἄμφω· τοῖς δ' ἐκείνως λέγουσιν
 οὐκ ἐνδέχεται, ἀλλ' ὡς ἐκ τοίχου λίθος καὶ πλίνθος,
 ἐκάτερον ἐξ ἄλλου τόπου καὶ μέρους. ὁμοίως δὲ
 καὶ τοῖς ποιούσι μίαν αὐτῶν ὕλην ἔχει τινὰ ἀπο-
 ρίαν, πῶς ἔσται τι ἐξ ἀμφοτέρων, οἶον ψυχροῦ καὶ
 5 θερμοῦ ἢ πυρὸς καὶ γῆς. εἰ γὰρ ἔστιν ἢ σὰρξ ἐξ
 ἀμφοῖν καὶ μηδέτερον ἐκείνων, μηδ' αὖ σύνθεσις
 σωζομένων, τί λείπεται πλὴν ὕλην εἶναι τὸ ἐξ
 300

from each other, namely, in what manner does anything else other than the elements themselves come-to-be out of them. The following is an example of what I mean : Water can come-to-be out of Fire and Fire out of Water (for their *substratum* is something common to both), but flesh, too, and marrow come-to-be out of them ; how do they come-to-be ? What manner of coming-to-be is ascribed to them by those who hold such a view as that of Empedocles ? They must maintain that the process is composition, just as a wall comes-to-be from bricks and stones ; moreover, this "mixture" will consist of the elements preserved intact but placed side by side with one another in minute particles. This, supposedly, is what happens in the case of flesh and each of the other compounds. The result is that Fire and Water do not come-to-be out of any and every part of the flesh ; for example, while a sphere might come-to-be from one part of a piece of wax and a pyramid from another, yet it was possible for either shape to have come-to-be out of either part of the material. This, then, is how coming-to-be occurs when both Fire and Water come-to-be out of any part of the flesh. But for those who hold the above view this is impossible, but the process can only take place as stone and brick come-to-be out of a wall, that is, each out of a different place and part. Similarly, a difficulty arises also for those who make out that the elements have a single matter, namely, how anything will result from two of them taken together, for instance, cold and hot or Fire and Earth. For if flesh consists of both and yet is neither of them, and again is not a compound in which they are preserved intact, what possibility remains except that the result of their composition

334 b

ἐκείνων; ἡ γὰρ θατέρου φθορὰ ἢ θάτερον ποιεῖ ἢ τὴν ὕλην.

- Ἄρ' οὖν ἐπειδὴ ἐστὶ καὶ μᾶλλον καὶ ἥττον θερμὸν καὶ ψυχρόν, ὅταν μὲν ἀπλῶς ἢ θάτερον ἐντελεχέα, 10 δυνάμει θάτερον ἔσται· ὅταν δὲ μὴ παντελῶς, ἀλλ' ὥς μὲν θερμὸν ψυχρόν, ὥς δὲ ψυχρὸν θερμὸν διὰ τὸ μὴ γινόμενα φθείρειν τὰς ὑπεροχὰς ἀλλήλων, τότε οὐθ' ἡ ὕλη ἔσται οὔτε ἐκείνων τῶν ἐναντίων ἐκάτερον ἐντελεχέα ἀπλῶς, ἀλλὰ μεταξύ· κατὰ δὲ τὸ 15 δυνάμει μᾶλλον εἶναι θερμὸν ἢ ψυχρὸν ἢ τοῦναντίον, κατὰ τοῦτον τὸν λόγον διπλασίως θερμὸν δυνάμει ἢ ψυχρόν, ἢ τριπλασίως, ἢ κατ' ἄλλον τρόπον τοιοῦτον; ἔσται δὲ μὴ μὲν τῶν ἐναντίων ἢ τῶν στοιχείων, καὶ τὰ στοιχεῖα ἐξ ἐκείνων δυνάμει πως ὄντων, οὐχ οὕτω δὲ ὥς ἡ ὕλη, ἀλλὰ 20 τὸν εἰρημένον τρόπον· καὶ ἔστιν οὕτω μὲν μίξις, ἐκείνως δὲ ὕλη τὸ γινόμενον. ἐπεὶ δὲ καὶ πάσχει τὰναντία κατὰ τὸν ἐν τοῖς πρώτοις διορισμόν· ἔστι γὰρ τὸ ἐνεργεῖα θερμὸν δυνάμει ψυχρὸν καὶ τὸ ἐνεργεῖα ψυχρὸν δυνάμει θερμόν, ὥστε ἐὰν μὴ ἰσάζῃ, μεταβάλλει εἰς ἄλληλα. ὁμοίως δὲ καὶ ἐπὶ 25 τῶν ἄλλων ἐναντίων· καὶ πρῶτον οὕτω τὰ στοιχεῖα μεταβάλλει, ἐκ δὲ τούτων σάρκες καὶ ὅσα καὶ τὰ τοιαῦτα, τοῦ μὲν θερμοῦ γινομένου ψυχροῦ, τοῦ δὲ ψυχροῦ θερμοῦ, ὅταν πρὸς τὸ μέσον

^a It is difficult to see any meaning in the words and they should perhaps be omitted.

^b i.e. the case where one contrary destroys the other, (lines 6, 7).

^c See 323 b 1 ff., where the law of the reciprocal action-and-passion of contraries is stated.

is matter? For the passing-away of either of them produces either the other or the matter.

Is the following a possible solution based on the fact that there are greater and less degrees in hot and cold? When one of them is actually in being without qualification, the other will be potentially in existence; but when neither completely exists but (because they mix and destroy one another's excesses) there is a hot which, for a hot, is cold, and a cold which, for a cold, is hot, then the result will be that neither their matter nor either of the two contraries will be actually in existence without qualification but an intermediate, and according as it is potentially more hot than cold or, *vice versa*, it will possess a power of heating greater in proportion—whether double or treble or in some such ratio—than its power of cooling. The other bodies will result from the contraries (that is, from the elements)^a when mixed together, and the elements will result from the contraries existing somehow potentially—not in the sense in which matter exists potentially but in the manner already explained. Thus “mixture” takes place, whereas what comes-to-be in the other case^b is matter. But since the contraries also are acted upon according to the definition given in the first part of this treatise^c—for the actually hot is potentially cold, and the actually cold is potentially hot, so that, unless the hot and cold are equalized, they change into one another (and the like happens in the case of the other contraries)—thus in the first place the elements are transformed; but out of them flesh and bones and the like come-to-be when the hot is becoming cold and the cold becoming hot and they reach the mean, for at that point there is neither hot

334 b

ἔλθῃ· ἐνταῦθα γὰρ οὐδέτερον, τὸ δὲ μέσον πολὺ καὶ οὐκ ἀδιαίρετον. ὁμοίως δὲ καὶ τὸ ξηρὸν καὶ
 30 ὑγρὸν καὶ τὰ τοιαῦτα κατὰ μεσότητα ποιούσι σάρκα καὶ ὀστοῦν καὶ τᾶλλα.

8. Ἄπαντα δὲ τὰ μικτὰ σώματα, ὅσα περὶ τὸν τοῦ μέσου τόπον ἐστίν, ἐξ ἀπάντων σύγκειται τῶν ἀπλῶν. γῆ μὲν γὰρ ἐνυπάρχει πᾶσι διὰ τὸ ἕκαστον εἶναι μάλιστα καὶ πλείστον ἐν τῷ οἰκείῳ τόπῳ,
 35 ὕδωρ δὲ διὰ τὸ δεῖν μὲν ὀρίζεσθαι τὸ σύνθετον, μόνον δ' εἶναι τῶν ἀπλῶν εὐόριστον τὸ ὕδωρ, ἔτι
 335 a δὲ καὶ τὴν γῆν ἄνευ τοῦ ὑγροῦ μὴ δύνασθαι συμ-
 μένειν, ἀλλὰ τοῦτ' εἶναι τὸ συνέχον· εἰ γὰρ ἐξ-
 αιρεθείη τελέως ἐξ αὐτῆς τὸ ὑγρὸν, διαπίπτει ἄν.

Γῆ μὲν οὖν καὶ ὕδωρ διὰ ταύτας ἐνυπάρχει τὰς
 5 αἰτίας, ἀῆρ δὲ καὶ πῦρ, ὅτι ἐναντία ἐστὶ γῆ καὶ ὕδατι· γῆ μὲν γὰρ ἀέρι, ὕδωρ δὲ πυρὶ ἐναντίον ἐστίν, ὡς ἐνδέχεται οὐσίαν οὐσία ἐναντίαν εἶναι. ἐπεὶ οὖν αἱ γενέσεις ἐκ τῶν ἐναντίων εἰσὶν, ἐνυπάρχει δὲ θάτερα ἄκρα τῶν ἐναντίων, ἀνάγκη καὶ θάτερα ἐνυπάρχειν, ὥστ' ἐν ἅπαντι τῷ συνθέτῳ πάντα τὰ
 10 ἀπλᾶ ἐνέσται. μαρτυρεῖν δ' ἔοικε καὶ ἡ τροφὴ ἐκάστων· ἅπαντα μὲν γὰρ τρέφεται τοῖς αὐτοῖς ἐξ ὧν περ ἐστίν, ἅπαντα δὲ πλείοσι τρέφεται. καὶ γὰρ ἅπερ ἂν δόξειεν ἐνὶ μόνῳ τρέφεσθαι, τῷ ὕδατι τὰ φυτά, πλείοσι τρέφεται· μέμικται γὰρ τῷ ὕδατι

^a i.e. the Earth as the centre of the universe.

^b i.e. because the region in which mixed bodies exist consists mainly of earth.

^c i.e. cold-dry (Earth) and cold-moist (Water).

^d i.e. hot-moist (Air) and hot-dry (Fire).

COMING-TO-BE AND PASSING-AWAY, II. 7-8

nor cold. (The mean, however, has considerable extension and is not indivisible.) In like manner also it is in virtue of being in a "mean" condition that the dry and the moist and the like produce flesh and bone and the other compounds.

8. All the mixed bodies, which exist about the region of the centre,^a are compounds of all the simple bodies. For Earth enters into their composition, because every simple body exists specially and in the greatest quantity in its own place ^b; and Water forms part of them, because that which is composite must have limits, and Water is the only one of the simple bodies which is easily confined within limits, and furthermore, the Earth cannot remain coherent without moisture, and this is what holds it together; for if the moisture were entirely removed from it, it would fall apart.

Every compound body must have all four simple bodies as its constituents.

Earth, therefore, and Water enter into the composition of simple bodies for these reasons; so also do Air and Fire because they are contraries of Earth and Water—Earth of Air, and Water of Fire, in the sense in which one substance can be contrary to another substance. Since, then, comings-to-be result from contraries, and one pair of extreme contraries is already present,^c the other pair ^d must also be present, so that all the simple bodies are found in every compound. The food of each compound serves to supply evidence of this; for they are all nourished by foods which are identical with their constituents, and all are nourished by more than one food. For indeed the plants, which would seem to be nourished by one food only, namely, Water, are fed by more than one food, for there is Earth mixed with the Water—and this, too, is why farmers experiment by

335 a

γῆ· διὸ καὶ οἱ γεωργοὶ πειρῶνται μίξαντες ἄρδειν.
 15 ἔπει δ' ἐστὶν ἡ μὲν τροφή τῆς ὕλης, τὸ δὲ τρεφόμενον συνειλημένον τῇ ὕλῃ ἡ μορφή καὶ τὸ εἶδος, εὖλογον ἤδη τὸ μόνον τῶν ἀπλῶν σωμάτων τρέφεσθαι τὸ πῦρ ἀπάντων ἐξ ἀλλήλων γινομένων, ὥσπερ καὶ οἱ πρότεροι λέγουσιν· μόνον γάρ ἐστι καὶ μάλιστα τοῦ εἵδους τὸ πῦρ διὰ τὸ πεφυκέναι
 20 φέρεσθαι πρὸς τὸν ὅρον. ἕκαστον δὲ πέφυκεν εἰς τὴν ἑαυτοῦ χώραν φέρεσθαι· ἡ δὲ μορφή καὶ τὸ εἶδος ἀπάντων ἐν τοῖς ὅροις. ὅτι μὲν οὖν ἅπαντα τὰ σώματα ἐξ ἀπάντων συνέστηκε τῶν ἀπλῶν, εἴρηται.

9. Ἐπεὶ δ' ἐστὶν ἓν ἡ γενητὰ καὶ φθαρτά, καὶ
 25 ἡ γένεσις τυγχάνει οὕσα ἐν τῷ περὶ τὸ μέσον τόπῳ, λεκτέον περὶ πάσης γενέσεως ὁμοίως πόσαι τε καὶ τίνες αὐτῆς αἱ ἀρχαί· ῥᾶον γὰρ οὕτω τὰ καθ' ἕκαστον θεωρήσομεν, ὅταν περὶ τῶν καθόλου λάβωμεν πρῶτον.

Εἰσὶν οὖν καὶ τὸν ἀριθμὸν ἴσαι καὶ τῷ γένει αἱ
 30 αὐταὶ αἵπερ ἐν τοῖς αἰδίοις τε καὶ πρώτοις· ἡ μὲν γάρ ἐστιν ὡς ὕλη, ἡ δ' ὡς μορφή. δεῖ δὲ καὶ τὴν τρίτην ἔτι προσυπάρχειν· οὐ γὰρ ἱκαναὶ πρὸς τὸ γεννηῖσαι αἱ δύο, καθάπερ οὐδ' ἐν τοῖς πρώτοις. ὡς μὲν οὖν ὕλη τοῖς γενητοῖς ἐστὶν αἷτιον τὸ δυνατὸν εἶναι καὶ μὴ εἶναι. τὰ μὲν γὰρ ἐξ ἀνάγκης
 35 ἐστίν, οἷον τὰ αἰδία, τὰ δ' ἐξ ἀνάγκης οὐκ ἔστιν.

^a See 321 b 16 ff.

COMING-TO-BE AND PASSING-AWAY, II. 8-9

making mixtures and use them for watering. Now whereas food is of the nature of matter, and that which is fed is the "shape" and "form" taken together with the matter,^a it is reasonable to suppose that of the simple bodies, while all come-to-be out of one another, Fire is the only one which is fed, as is the view also of the earlier philosophers. For Fire alone—and to a greater extent than the rest—is of the nature of "form," because it naturally tends to be borne towards the limit. Now each of the simple bodies tends to be borne to its own place, and the "shape" and "form" of all of them depend on their limits. It has now been explained that all the compound bodies are composed of the simple bodies.

9. Since some things are of a nature to come-to-be and to pass-away, and since coming-to-be actually takes place in the region about the centre, we must discuss the number and the nature of the sources of all coming-to-be alike ; for we shall more easily form a theory about the particulars when we have first grasped the universals.

Chapters
9 and 10.
*What causes
coming-to-be
and passing-
away ?*
Material,
formal
and final
causes.

These sources, then, are equal in number to and identical in kind with those which exist among eternal and primary things. For there is one in the sense of material cause, a second in the sense of formal cause, and the third too must be present also ; for the two sources are not enough to generate things which come-to-be, just as they are not enough in the case of primary things either. Now cause in the sense of matter for things which are of a nature to come-to-be is "the possibility of being and not-being." For some things exist of necessity, for example, the things which are eternal, and some things of necessity do *not* exist ; and of these two classes it is impossible

335 a

τούτων δὲ τὰ μὲν ἀδύνατον μὴ εἶναι, τὰ δὲ ἀδύ-
 335 b νατον εἶναι διὰ τὸ μὴ ἐνδέχεσθαι παρὰ τὸ ἀναγκαῖον
 ἄλλως ἔχειν. ἔνια δὲ καὶ εἶναι καὶ μὴ εἶναι δυνατά,
 ὅπερ ἐστὶ τὸ γενητὸν καὶ φθαρτόν· ποτὲ μὲν γάρ
 ἐστὶ τοῦτο, ποτὲ δ' οὐκ ἐστίν. ὥστ' ἀνάγκη γέ-
 5 νεσιν εἶναι καὶ φθορὰν περὶ τὸ δυνατόν εἶναι καὶ
 μὴ εἶναι. διὸ καὶ ὡς μὲν ὕλη τοῦτ' ἐστὶν αἷτιον
 τοῖς γενητοῖς, ὡς δὲ τὸ οὐ ἔνεκεν ἡ μορφή καὶ τὸ
 εἶδος· τοῦτο δ' ἐστὶν ὁ λόγος ὁ τῆς ἐκάστου οὐσίας.

Δεῖ δὲ προσεῖναι καὶ τὴν τρίτην, ἣν ἅπαντες
 μὲν ὀνειρώττουσι, λέγει δ' οὐδεὶς, ἀλλ' οἱ μὲν
 10 ἱκανὴν ᾤκηθησαν αἰτίαν εἶναι πρὸς τὸ γίνεσθαι τὴν
 τῶν εἰδῶν φύσιν, ὥσπερ ὁ ἐν Φαίδωνι Σωκράτης·
 καὶ γὰρ ἐκεῖνος, ἐπιτιμήσας τοῖς ἄλλοις ὡς οὐδὲν
 εἰρηκόσιν, ὑποτίθεται ὅτι ἐστὶ τῶν ὄντων τὰ μὲν
 εἶδη τὰ δὲ μεθεκτικὰ τῶν εἰδῶν, καὶ ὅτι εἶναι μὲν
 ἕκαστον λέγεται κατὰ τὸ εἶδος, γίνεσθαι δὲ κατὰ
 15 τὴν μετάληψιν καὶ φθείρεσθαι κατὰ τὴν ἀποβολήν,
 ὥστ' εἰ ταῦτα ἀληθῆ, τὰ εἶδη οἴεται ἐξ ἀνάγκης
 αἷτια εἶναι καὶ γενέσεως καὶ φθορᾶς. οἱ δ' αὐτὴν
 τὴν ὕλην· ἀπὸ ταύτης γὰρ εἶναι τὴν κίνησιν. οὐ-
 δέτεροι δὲ λέγουσι καλῶς. εἰ μὲν γὰρ ἐστὶν αἷτια
 τὰ εἶδη, διὰ τί οὐκ αἰεὶ γεννᾷ συνεχῶς, ἀλλὰ ποτὲ
 20 μὲν ποτὲ δ' οὐ, ὄντων καὶ τῶν εἰδῶν αἰεὶ καὶ τῶν

^a Plato, *Phaedo* 96 A—99 C.

COMING-TO-BE AND PASSING-AWAY, II. 9

for the first *not to be*, while for the second it is impossible *to be*, because they cannot be other than they are in violation of the law of necessity. Some things, however, can both *be* and *not be*. This is the case with that which can come-to-be and pass-away ; for at one moment it exists, at another it does not exist. So coming-to-be and passing-away must occur in the sphere of what can-be-and-not-be. This, then, is the cause, in the sense of material cause, of things which are of a nature to come-to-be, whereas cause, in the sense of their "end in view," is their shape and form ; and this is the definition of the essential nature of each of them.

But the third source must also be present, of which everyone dreams but never puts into words. But some people have thought the nature of the "forms" was enough to account for coming-to-be. Socrates, for instance, did so in the *Phaedo*^a ; for he, after finding fault with the other philosophers for having made no pronouncement on the subject, lays it down that some of the things which exist are "forms" and others "partakers in the forms," and that each thing is said to exist in virtue of the "form" and to come-to-be in virtue of its participation in the "form" and to pass-away because of its rejection of it. Hence he thinks that, if this is true, the "forms" are necessarily the causes of both coming-to-be and passing-away. On the other hand, some have thought that the matter in itself was the cause ; for it is from this, they said, that movement arises. But neither of these schools of thought is right. For, if the "forms" are causes, why do they not always generate continually but only intermittently, since the "forms" and the partakers in them are always there ? Further-

Criticism
of the
theory pro-
posed in
Plato's
Phaedo,
and the
materialist
theory.

335 b

μεθεκτικῶν; ἔτι δ' ἐπ' ἐνίων θεωροῦμεν ἄλλο
 τὸ αἷτιον ὄν· ὑγίειαν γὰρ ὁ ἱατρὸς ἐμποιεῖ καὶ
 ἐπιστήμην ὁ ἐπιστήμων, οὔσης καὶ ὑγιείας αὐτῆς
 καὶ ἐπιστήμης καὶ τῶν μεθεκτικῶν· ὡσαύτως
 δὲ καὶ ἐπὶ τῶν ἄλλων τῶν κατὰ δύναμιν πρατ-
 τομένων. εἰ δὲ τὴν ὕλην τις φήσειε γεννᾶν διὰ
 25 τὴν κίνησιν, φυσικώτερον μὲν ἂν λέγοι τῶν οὕτω
 λεγόντων· τὸ γὰρ ἀλλοιοῦν καὶ τὸ μετασχηματίζον
 αἰτιώτερόν τε τοῦ γεννᾶν, καὶ ἐν ἅπασιν εἰώθαμεν
 τοῦτο λέγειν τὸ ποιοῦν, ὁμοίως ἔν τε τοῖς φύσει
 καὶ ἐν τοῖς ἀπὸ τέχνης, ὃ ἂν ᾗ κινητικόν. οὐ μὴν
 ἀλλὰ καὶ οὗτοι οὐκ ὀρθῶς λέγουσιν· τῆς μὲν
 30 γὰρ ὕλης τὸ πάσχειν ἐστὶ καὶ τὸ κινεῖσθαι, τὸ δὲ
 κινεῖν καὶ τὸ ποιεῖν ἐτέρας δυνάμεως (δῆλον δὲ
 καὶ ἐπὶ τῶν τέχνη καὶ ἐπὶ τῶν φύσει γινομένων·
 οὐ γὰρ αὐτὸ ποιεῖ τὸ ὕδωρ ζῶον ἐξ αὐτοῦ, οὐδὲ
 τὸ ξύλον κλίνην, ἀλλ' ἡ τέχνη). ὥστε καὶ οὗτοι
 διὰ τοῦτο λέγουσιν οὐκ ὀρθῶς, καὶ ὅτι παραλεί-
 35 πουσιν τὴν κυριωτέραν αἰτίαν· ἐξαιροῦσι γὰρ τὸ τί
 336 a ᾗν εἶναι καὶ τὴν μορφήν. ἔτι δὲ καὶ τὰς δυνάμεις
 ἀποδιδόασιν τοῖς σώμασι, δι' ἃς γεννῶσι, λίαν
 ὀργανικῶς, ἀφαιροῦντες τὴν κατὰ τὸ εἶδος αἰτίαν.
 ἐπειδὴ γὰρ πέφυκεν, ὥς φασι, τὸ μὲν θερμὸν δια-
 κρίνειν τὸ δὲ ψυχρὸν συνιστάναι, καὶ τῶν ἄλλων
 5 ἑκάστον τὸ μὲν ποιεῖν τὸ δὲ πάσχειν, ἐκ τούτων
 λέγουσι καὶ διὰ τούτων ἅπαντα τὰλλα γίνεσθαι

more, in some cases we see that something else is the cause ; for it is the physician who implants health and the scientific man who implants scientific knowledge, although health itself and science itself exist and also the participants in them ; and the same thing is true of the other operations carried out in virtue of a special faculty. On the other hand, if one were to say that matter generates by means of its movement, he would speak more in accordance with the facts of nature than those who state the view given above ; for that which “ alters ” and transforms is a more potent cause of bringing things into being, and we are always accustomed, in the products alike of nature and of art, to make out that whatever can cause motion is the acting cause. However, these thinkers are also wrong ; for to be acted upon, that is, to be moved, is characteristic of matter, but to move, that is to act, is the function of another power. (This is evident both in the things which come-to-be by art and in those which come-to-be by nature ; for water does not itself produce an animal out of itself, nor does wood produce a bed, but art). So, for this reason, these thinkers are not correct in what they say, and also because they omit the most potent cause ; for they exclude the essential nature and the “ form.” Moreover, also, when they do away with the formal cause, the powers which they attribute to bodies and which enable them to bring things into being are too instrumental in character. For since, as they assert, it is the nature of the hot to separate and of the cold to bring together and of each of the other qualities the one to act and the other to be acted upon, it is out of these and by means of these, so they say, that all the other things come-to-be and

326 a

- καὶ φθείρεσθαι· φαίνεται δὲ καὶ τὸ πῦρ αὐτὸ κινούμενον καὶ πάσχον. ἔτι δὲ παραπλήσιον ποιοῦσιν ὥσπερ εἴ τις τῷ πρίονι καὶ ἐκάστῳ τῶν ὀργάνων
- 10 ἀπονέμοι τὴν αἰτίαν τῶν γινομένων· ἀνάγκη γὰρ πρίοντος διαιρεῖσθαι καὶ ξέοντος λεαίνεσθαι, καὶ ἐπὶ τῶν ἄλλων ὁμοίως. ὥστ' εἰ ὅτι μάλιστα ποιεῖ καὶ κινεῖ τὸ πῦρ, ἀλλὰ πῶς κινεῖ οὐ προσθεωροῦσιν,¹ ὅτι χεῖρον ἢ τὰ ὄργανα. ἡμῖν δὲ καθόλου τε πρότερον εἴρηται περὶ τῶν αἰτίων, καὶ νῦν διώρισταί περὶ τε τῆς ὕλης καὶ τῆς μορφῆς.
- 15 10. Ἔτι δὲ ἐπεὶ ἡ κατὰ τὴν φοράν κίνησις δέδεικται ὅτι αἰδῖος, ἀνάγκη τούτων ὄντων καὶ γένεσιν εἶναι συνεχῶς· ἡ γὰρ φορά ποιήσῃ τὴν γένεσιν ἐνδελεχῶς διὰ τὸ προσάγειν καὶ ἀπάγειν τὸ γεννητικόν. ἅμα δὲ δῆλον ὅτι καὶ τὰ πρότερον καλῶς
- 20 εἴρηται, τὸ πρῶτην τῶν μεταβολῶν τὴν φοράν ἀλλὰ μὴ τὴν γένεσιν εἰπεῖν· πολὺ γὰρ εὐλογώτερον τὸ ὃν τῷ μὴ ὄντι γενέσεως αἴτιον εἶναι ἢ τὸ μὴ ὄν τῷ ὄντι τοῦ εἶναι. τὸ μὲν οὖν φερόμενον ἔστι, τὸ δὲ γινόμενον οὐκ ἔστιν· διὸ καὶ ἡ φορά προτέρα τῆς γενέσεως. ἐπεὶ δ' ὑπόκειται καὶ δέ-
- 25 δεικται συνεχῆς οὔσα τοῖς πράγμασι καὶ γένεσις καὶ φθορά, φανέν δ' αἰτίαν εἶναι τὴν φοράν τοῦ γίνεσθαι, φανερόν ὅτι μιᾶς μὲν οὔσης τῆς φορᾶς οὐκ ἐνδέχεται γίνεσθαι ἄμφω διὰ τὸ ἐναντία εἶναι·

¹ οὐ προσθεωροῦσι : οὐ προσθεωροῖσιν E : οὐ προσθεωροῦσιν H : οὐχ ὀρώσιν FI..

^a *Phys.* ii. 3-9.

^b See 335 a 32-b 7.

^c *Phys.* viii. 7-9.

^d *i.e.* the sun, see below.

^e *Phys.* 260 a 26 ff.

COMING-TO-BE AND PASSING-AWAY, II. 9-10

pass-away. But it is evident that Fire itself is moved and is acted upon ; moreover, they are doing much the same thing as if one were to ascribe to the saw or to any other tool the causation of objects which are brought into being ; for division must take place when a man saws and smoothing when he uses a plane, and a similar effect must be produced by the use of the other tools. Hence, however much Fire is active and causes motion, yet they fail to observe *how* it moves things, namely, in a manner inferior to that in which the tools act. We have ourselves dealt with causes in general in a previous work,^a and we have now ^b distinguished between matter and form.

10. Moreover, since the change caused by motion has been proved to be eternal,^c it necessarily follows, if that is so, that coming-to-be goes on continuously ; for the movement will produce coming-to-be uninterruptedly by bringing near and withdrawing the " generator." ^d At the same time it is evident that our statement in a former work ^e was also right in which we spoke of motion, not coming-to-be, as the " primary kind of change." For it is far more reasonable that that which *is* should be a cause of coming-to-be of that which *is not*, than that that which *is not* should be cause of being to that which *is*. For that which is being moved exists, but that which is coming-to-be does not exist ; therefore movement is prior to coming-to-be. Now since it has been suggested and proved ^f that coming-to-be and passing-away happen to things continuously, and we maintain that motion is the cause of coming-to-be, it is clear that, if motion is simple, both processes cannot go on because they are contrary to one another ; for nature has ordained

The efficient cause of coming-to-be and passing-away is the sun's annual movement in the ecliptic circle.

^f Cf. 317 b 33 ff.

336 a

τὸ γὰρ αὐτὸ καὶ ὡσαύτως ἔχον αἰεὶ τὸ αὐτὸ πέφυκε
 ποιεῖν. ὥστε ἥτοι γένεσις αἰεὶ ἔσται ἢ φθορά. δεῖ
 30 δὲ πλείους εἶναι τὰς κινήσεις καὶ ἐναντίας, ἢ τῇ
 φθορᾷ ἢ τῇ ἀνωμαλίᾳ· τῶν γὰρ ἐναντίων τὰναντία
 αἷτια.

Διὸ καὶ οὐχ ἡ πρώτη φθορὰ αἷτια ἐστὶ γενέσεως
 καὶ φθορᾶς, ἀλλ' ἡ κατὰ τὸν λοξὸν κύκλον· ἐν
 ταύτῃ γὰρ καὶ τὸ συνεχές ἐστὶ καὶ τὸ κινεῖσθαι
 δύο κινήσεις· ἀνάγκη γάρ, εἴ γε αἰεὶ ἔσται συνεχῆς
 336 b γένεσις καὶ φθορά, αἰεὶ μὲν τι κινεῖσθαι, ἵνα μὴ
 ἐπιλείπωσιν αὐταὶ αἱ μεταβολαί, δύο δ', ὅπως μὴ
 θάτερον συμβαίνει μόνον. τῆς μὲν οὖν συνεχείας
 ἡ τοῦ ὅλου φθορὰ αἷτια, τοῦ δὲ προσιέναι καὶ
 ἀπιέναι ἢ ἔγκλισις· συμβαίνει γὰρ ὅτε μὲν πόρρω
 5 γίνεσθαι ὅτε δ' ἐγγύς. ἀνίσου δὲ τοῦ διαστή-
 ματος ὄντος ἀνώματος ἔσται ἡ κίνησις· ὥστ' εἰ
 τῷ προσιέναι καὶ ἐγγύς εἶναι γεννᾶ, τῷ ἀπιέναι
 ταῦτόν τοῦτο καὶ πόρρω γίνεσθαι φθείρει, καὶ εἰ
 τῷ πολλάκις προσιέναι γεννᾶ, καὶ τῷ πολλάκις
 ἀπελθεῖν φθείρει· τῶν γὰρ ἐναντίων τὰναντία αἷτια.
 10 καὶ ἐν ἴσῳ χρόνῳ καὶ ἡ φθορὰ καὶ ἡ γένεσις ἡ
 κατὰ φύσιν. διὸ καὶ οἱ χρόνοι καὶ οἱ βίοι ἐκάστων
 ἀριθμὸν ἔχουσι καὶ τούτῳ διορίζονται· πάντων γάρ
 ἐστὶ τάξις, καὶ πᾶς βίος καὶ χρόνος μετρεῖται
 περιόδῳ, πλὴν οὐ τῇ αὐτῇ πάντες, ἀλλ' οἱ μὲν

^a The revolution of the *πρῶτος οὐρανός* or outermost sphere which revolves once every twenty-four hours.

^b The annual course of the sun in the ecliptic circle.

^c *i.e.* of the *πρῶτος οὐρανός*, which also involves the revolution of the concentric spheres.

^d The inclination of the ecliptic to the equator of the outer-

that the same thing, as long as it remains in the same state, always produces the same result, so that either coming-to-be or passing-away will always result. The movements, however, must be more than one and contrary to one another either in the direction of their motion or in their irregularity ; for contraries are the causes of contraries.

It is not, therefore, the primary motion ^a which is the cause of coming-to-be and passing-away, but the motion along the inclined circle ^b ; for in this there is both continuity and also double movement, for it is essential, if there is always to be continuous coming-to-be and passing-away, that there should be something always moving, in order that this series of changes may not be broken, and double movement, in order that there may not be only one change occurring. The movement of the whole ^c is the cause of the continuity, and the inclination ^d causes the approach and withdrawal of the moving body ; for since the distance is unequal, the movement will be irregular. Therefore, if it generates by approaching and being near, this same body causes destruction by withdrawing and becoming distant, and if by frequently approaching it generates, by frequently withdrawing it destroys ; for contraries are the cause of contraries, and natural passing-away and coming-to-be take place in an equal period of time. Therefore the periods, that is the lives, of each kind of living thing have a number and are thereby distinguished ; for there is an order for everything, and every life and span is measured by a period, though this is not the same for all, but some are

most sphere ; according to Aristotle, the equator of the Universe is in the same plane as the earth's equator.

336 b

ἐλάττονι οἱ δὲ πλείονι· τοῖς μὲν γὰρ ἐνιαυτός, τοῖς
15 δὲ μείζων, τοῖς δὲ ἐλάττων περίοδος¹ ἐστὶ τὸ
μέτρον.

Φαίνεται δὲ καὶ τὰ² κατὰ τὴν αἴσθησιν ὁμολογού-
μενα τοῖς παρ' ἡμῶν λόγοις· ὁρῶμεν γὰρ ὅτι
προσιόντος μὲν τοῦ ἡλίου γένεσις ἐστίν, ἀπιόντος
δὲ φθίσις, καὶ ἐν ἴσῳ χρόνῳ ἐκάτερον· ἴσος γὰρ ὁ
χρόνος τῆς φθορᾶς καὶ τῆς γενέσεως τῆς κατὰ
20 φύσιν. ἀλλὰ συμβαίνει πολλάκις ἐν ἐλάττονι
φθείρεσθαι διὰ τὴν πρὸς ἄλληλα σύγκρασιν· ἀνω-
μάλου γὰρ οὔσης τῆς ὕλης καὶ οὐ πανταχοῦ τῆς
αὐτῆς ἀνάγκη καὶ τὰς γενέσεις ἀνωμάλους εἶναι
καὶ τὰς μὲν θάττους τὰς δὲ βραδυτέρας, ὥστε
συμβαίνει διὰ τὴν τούτων γένεσιν ἄλλοις γίνεσθαι
φθοράν.

25 'Αεὶ δ', ὥσπερ εἴρηται, συνεχῆς ἔσται ἡ γένεσις
καὶ ἡ φθορά, καὶ οὐδέποτε ὑπολείψει δι' ἣν εἴπομεν
αἰτίαν. τοῦτο δ' εὐλόγως συμβέβηκεν· ἐπεὶ γὰρ
ἐν ἅπασιν αἰεὶ τοῦ βελτίονος ὀρέγεσθαι φαμεν τὴν
φύσιν, βέλτιον δὲ τὸ εἶναι ἢ τὸ μὴ εἶναι (τὸ δ' εἶναι
30 ποσαχῶς λέγομεν, ἐν ἄλλοις εἴρηται), τοῦτο δ'
ἀδύνατον ἐν ἅπασιν ὑπάρχειν διὰ τὸ πόρρω τῆς
ἀρχῆς ἀφίστασθαι, τῷ λειπομένῳ τρόπῳ συνε-
πλήρωσε τὸ ὅλον ὁ θεός, ἐνδελεχῆ³ ποιήσας τὴν
γένεσιν· οὕτω γὰρ ἂν μάλιστα συνείροιτο τὸ εἶναι
διὰ τὸ ἐγγύτατα εἶναι τῆς οὐσίας τὸ γίνεσθαι αἰεὶ
337 a καὶ τὴν γένεσιν. τούτου δ' αἴτιον, ὥσπερ εἴρηται

¹ ἢ ante περίοδος omisi.

² τὰ addidi.

³ ἐνδελεχῆ FH: ἐντελεχῆ E.

^a See 318 a 9 ff.

^b *Metaphysics*, *passim*.

COMING-TO-BE AND PASSING-AWAY, II. 10

measured by a smaller and some by a greater period ; for some the measure is a year, for others a greater or a lesser period.

The evidence of sense-perception clearly agrees with our views ; for we see that coming-to-be occurs when the sun approaches, and passing-away when it withdraws, and the two processes take an equal time ; for the space of time occupied by natural passing-away and coming-to-be is equal. It often happens, however, that things pass away in too short a time owing to the commingling of things with one another ; for, their matter being irregular and not everywhere the same, their comings-to-be must also be irregular, sometimes too quick and sometimes too slow. The result is that the coming-to-be of certain things becomes the cause of the passing-away of other things.

As has already been remarked, coming-to-be and passing-away will take place continuously, and will never fail owing to the cause which we have given.^a This has come about with good reason. For nature, as we maintain, always and in all things strives after the better ; and “ being ” (we have stated elsewhere the different meanings of “ being ” ^b) is better than “ not-being,” but it is impossible that “ being ” can be present in all things, because they are too far away from the “ original source.” God, therefore, following the course which still remained open, perfected the universe by making coming-to-be a perpetual process ; for in this way “ being ” would acquire the greatest possible coherence, because the continual coming-to-be of coming-to-be is the nearest approach to eternal being. The cause of this continuous process, as has been frequently remarked, is cyclical

Aristotle claims that his theory explains how coming-to-be and passing-away maintain their continuous alteration.

337 a

πολλάκις, ἢ κύκλῳ φορά· μόνη γὰρ συνεχῆς. διὸ καὶ τὰλλα ὅσα μεταβάλλει εἰς ἄλληλα κατὰ τὰ πάθη καὶ τὰς δυνάμεις, οἷον τὰ ἀπλᾶ σώματα, μιμεῖται τὴν κύκλῳ φοράν· ὅταν γὰρ ἐξ ὕδατος
 5 ἀὴρ γένηται καὶ ἐξ αἰέρος πῦρ καὶ πάλιν ἐκ πυρὸς ὕδωρ, κύκλῳ φαμέν περιεληλυθέναι τὴν γένεσιν διὰ τὸ πάλιν ἀνακάμπτειν. ὥστε καὶ ἡ εὐθεῖα φορά μιμουμένη τὴν κύκλῳ συνεχῆς ἐστίν.

Ἄμα δὲ δῆλον ἐκ τούτων ὅτι τινες ἀποροῦσιν, διὰ τί, ἐκάστου τῶν σωμάτων εἰς τὴν οἰκείαν φε-
 10 ρομένου χώραν, ἐν τῷ ἀπείρῳ χρόνῳ οὐ διεστᾶσι τὰ σώματα. αἴτιον γὰρ τούτου ἐστὶν ἢ εἰς ἄλληλα μετάβασις· εἰ γὰρ ἕκαστον ἔμενεν ἐν τῇ αὐτοῦ χώρᾳ καὶ μὴ μετέβαλλεν ὑπὸ τοῦ πλησίον, ἤδη ἂν διεστήκεσαν. μεταβάλλει μὲν οὖν διὰ τὴν φοράν διπλὴν οὔσαν· διὰ δὲ τὸ μεταβάλλειν οὐκ
 15 ἐνδέχεται μένειν οὐδὲν αὐτῶν ἐν οὐδεμιᾷ χώρᾳ τεταγμένη.

Διότι μὲν οὖν ἔστι γένεσις καὶ φθορὰ καὶ διὰ τίν' αἰτίαν, καὶ τί τὸ γενητὸν καὶ φθαρτὸν, φανερόν ἐκ τῶν εἰρημένων. ἐπεὶ δ' ἀνάγκη εἶναι τι τὸ κινοῦν, εἰ κίνησις ἔσται, ὥσπερ εἴρηται πρό-
 20 τερον ἐν ἑτέροις, καὶ εἰ αἰεῖ, ὅτι αἰεῖ τι δεῖ εἶναι, καὶ ἐν συνεχῆς, ἐν τὸ αὐτὸ καὶ ἀκίνητον καὶ ἀγένη-
 τον καὶ ἀναλλοίωτον· καὶ εἰ πλείους εἶεν αἱ κύκλῳ κινήσεις, πλείους μὲν, πάσας δὲ πῶς εἶναι ταύτας ἀνάγκη ὑπὸ μίαν ἀρχήν· συνεχοῦς δ' ὄντος τοῦ

a *Phys.* 255 b 31 ff.

COMING-TO-BE AND PASSING-AWAY, II. 10

motion, the only motion which is continuous. Hence also the other things which change into one another, for instance, the simple bodies, by being acted upon or having power to act, imitate cyclical movement. For when Air comes-to-be from Water, and Fire from Air, and Water again from Fire, we say that coming-to-be has completed the cycle, because it has come back to its starting-point. Hence motion in a straight line is also continuous because it imitates cyclical motion.

This at the same time clears up a point which some people find puzzling, namely, the reason why, since each of the bodies is being borne along towards its own place, the bodies have not become separated in the infinity of time. The reason is their reciprocal change of position ; for if each remained in its own place and was not transformed by its neighbour, they would have long ago been parted. Their transformation, then, is due to the movement of a double kind ; and, owing to their transformation, none of them can remain in any fixed position.

From what has been said, it is evident that coming-to-be and passing-away take place, and why this is so, and what it is that comes-to-be and passes-away. But if there is to be movement, there must, as has been explained elsewhere in an earlier treatise,^a be something which causes movement, and if movement is to go on always, that which causes it must go on always and, if it is to be continuous, that which causes it must be one and the same and unmoved, un-generated and unalterable ; and if the cyclical movements are to be more than one, they must, in spite of being more than one, be all subject somehow to one cause ; and since time is continuous, the move-

337 a

χρόνου ἀνάγκη τὴν κίνησιν συνεχῇ εἶναι, εἵπερ
 ἀδύνατον χρόνον χωρὶς κινήσεως εἶναι. συνεχοῦς
 25 ἄρα τινὸς ἀριθμὸς ὁ χρόνος, τῆς κύκλῳ ἄρα, καθ-
 ἄπερ ἐν τοῖς ἐν ἀρχῇ λόγοις διωρίσθη. συνεχῆς
 δ' ἡ κίνησις πότερον τῷ τὸ κινούμενον συνεχές
 εἶναι ἢ τῷ τὸ ἐν ᾧ κινεῖται, οἷον τὸν τόπον λέγω
 ἢ τὸ πάθος; δῆλον δὴ ὅτι τῷ τὸ κινούμενον· πῶς
 γὰρ τὸ πάθος συνεχές ἀλλ' ἢ τῷ τὸ πρᾶγμα ᾧ
 συμβέβηκε συνεχές εἶναι; εἰ δὲ καὶ τῷ ἐν ᾧ,
 30 μόνῳ τοῦτο τῷ τόπῳ ὑπάρχει· μέγεθος γάρ τι ἔχει.
 τούτου δὲ τὸ κύκλῳ μόνον συνεχές, ὥστε αὐτὸ
 αὐτῷ αἰεὶ συνεχές. τοῦτο ἄρα ἐστὶν ὁ ποιεῖ συνεχῇ
 κίνησιν, τὸ κύκλῳ σῶμα φερόμενον· ἡ δὲ κίνησις
 τὸν χρόνον.

11. Ἐπεὶ δ' ἐν τοῖς συνεχῶς κινουμένοις κατὰ
 35 γένεσιν ἢ ἀλλοίωσιν ἢ ὅλως μεταβολὴν ὁρῶμεν
 337 b τὸ ἐφεξῆς ὃν καὶ γινόμενον τότε μετὰ τότε ὥστε
 μὴ διαλείπειν, σκεπτέον πότερον ἔστι τι ὃ ἐξ
 ἀνάγκης ἔσται, ἢ οὐδέν, ἀλλὰ πάντα ἐνδέχεται μὴ
 γενέσθαι. ὅτι μὲν γὰρ ἔνια, δῆλον, καὶ εὐθύς τὸ
 ἔσται καὶ τὸ μέλλον ἕτερον διὰ τοῦτο· ὁ μὲν γὰρ
 5 ἀληθὲς εἰπεῖν ὅτι ἔσται, δεῖ τοῦτο εἶναί ποτε ἀληθὲς
 ὅτι ἔστιν· ὁ δὲ νῦν ἀληθὲς εἰπεῖν ὅτι μέλλει, οὐδέν

^a *Phys.* 217 b 29 ff.

COMING-TO-BE AND PASSING-AWAY, II. 10-11

ment must be continuous, because it is impossible for there to be time without movement. Time, then, is a way of reckoning some kind of continuous movement and, therefore, of cyclical movement, as was laid down in our original discussion.^a But is movement continuous because that which is moved is continuous or because that in which it moves is continuous (for example, the place or the quality)? Clearly because that which is moved is continuous; for how could the quality be continuous except because the thing to which it belongs is continuous? And if it is because the place in which it occurs is continuous, continuity is to be found only in the place in which it occurs; for it has a certain magnitude. But of that which moves, only that which moves in a circle is continuous in such a way that it is always continuous with itself. This, then, is what produces continuous motion, namely, the body which is moved in a circle, and its movement makes time continuous.

11. When in things which are moved continuously in the course of coming-to-be or alteration or change generally, we observe a sequence, that is, one thing coming-to-be after another in such a way that there is no cessation, we must inquire whether there is anything which will necessarily exist in the future or whether there is no such thing, or whether any one of them may possibly fail to come-to-be. For it is evident that some of them fail to come-to-be, and the readiest example is the difference which for this reason exists between "something will be" and "something is about to be"; for if it is true to say "something will be," it must be true at some future date to say that it *is*. On the other hand, though it is true now to say that "something is about to happen,"

Things which come-to-be do so "of necessity" because a cyclical series of changes is absolutely "of necessity."

337 b

κωλύει μὴ γενέσθαι· μέλλων γὰρ ἂν βαδίζειν τις
οὐκ ἂν βαδίσειεν. ὅλως δ', ἐπεὶ ἐνδέχεται ἓνια
τῶν ὄντων καὶ μὴ εἶναι, δῆλον ὅτι καὶ τὰ γινόμενα
10 οὕτως ἔξει, καὶ οὐκ ἐξ ἀνάγκης τοῦτ' ἔσται. πότε-
ρον οὖν ἅπαντα τοιαῦτα ἢ οὐ, ἀλλ' ἓνια ἀναγκαῖον
ἀπλῶς γίνεσθαι, καὶ ἔστιν ὥσπερ ἐπὶ τοῦ εἶναι
τὰ μὲν ἀδύνατα μὴ εἶναι τὰ δὲ δυνατά, οὕτως καὶ
περὶ τὴν γένεσιν; οἷον τροπὰς ἄρα ἀνάγκη γε-
νέσθαι, καὶ οὐχ οἷόν τε μὴ ἐνδέχεσθαι.

Εἰ δὴ τὸ πρότερον ἀνάγκη γενέσθαι, εἰ τὸ
15 ὕστερον ἔσται (οἷον εἰ οἰκία, θεμέλιον, εἰ δὲ
τοῦτο, πηλόν), ἄρ' οὖν καὶ εἰ θεμέλιος γέγονεν,
ἀνάγκη οἰκίαν γενέσθαι; ἢ οὐκέτι, εἰ μὴ κακὲν
ἀνάγκη γενέσθαι ἀπλῶς; εἰ δὲ τοῦτο, ἀνάγκη καὶ
θεμελίου γενομένου γενέσθαι οἰκίαν· οὕτω γὰρ ἦν
τὸ πρότερον ἔχον πρὸς τὸ ὕστερον, ὥστ' εἰ ἐκείνο
20 ἔσται, ἀνάγκη ἐκείνο πρότερον. εἰ τοίνυν ἀνάγκη
γενέσθαι τὸ ὕστερον, καὶ τὸ πρότερον ἀνάγκη· καὶ
εἰ τὸ πρότερον, καὶ τὸ ὕστερον τοίνυν ἀνάγκη, ἀλλ'
οὐ δι' ἐκείνο, ἀλλ' ὅτι ὑπέκειτο ἐξ ἀνάγκης ἐσό-
μενον. ἐν οἷς ἄρα τὸ ὕστερον ἀνάγκη εἶναι, ἐν
τούτοις ἀντιστρέφει, καὶ ἀεὶ τοῦ προτέρου γενο-
25 μένου ἀνάγκη γενέσθαι τὸ ὕστερον.

there is nothing to prevent its not happening—a man might not go for a walk, though he is now “about to” do so. In general, since it is possible for some of the things which “are” also “not to be,” obviously things which are coming-to-be are also in this case and their coming-to-be will not necessarily take place. Are, then, all the things which come-to-be of this kind? Or is this not so, but it is absolutely necessary for some of them to come-to-be? And does the same thing happen in the sphere of coming-to-be as in that of being, where there are some things for which it is impossible “not to be” and for others which it is possible? For example, solstices must come-to-be and it is impossible that they should be unable to occur.

If it is necessary for that which is prior to come-to-be if that which is posterior is to be—for example, foundations must have come-to-be if a house is to exist, and there must be clay if there are to be foundations—does it follow that, if the foundations have come-to-be, the house must necessarily do so? Or is this no longer so, if there is no such absolute necessity? In this case, however, if the foundations have come-to-be, the house must come-to-be; for such was the assumed relation of the prior to the posterior that, if the posterior is to be, the prior must have preceded it. If, therefore, it is necessary that the posterior should come-to-be, it is necessary also that the prior should have come-to-be, and, if the prior, then also the posterior, not, however, because of the prior, but because the future being of the posterior was assumed as necessary. Hence, whenever the posterior is necessary, the reverse is also true, and always when the prior has come-to-be, the posterior must also come-to-be.

337 b

Εἰ μὲν οὖν εἰς ἄπειρον εἰσιν ἐπὶ τὸ κάτω, οὐκ ἔσται ἀνάγκη τὸ ὕστερον τόδε γενέσθαι ἀπλῶς, ἀλλ' ἐξ ὑποθέσεως· ἀεὶ γὰρ ἕτερον ἔμπροσθεν ἀνάγκη ἔσται, δι' ὃ ἐκεῖνο ἀνάγκη γενέσθαι. ὥστ' εἰ μὴ ἐστὶν ἀρχὴ τοῦ ἀπείρου, οὐδὲ πρῶτον ἔσται
 30 οὐδέν, δι' ὃ ἀναγκαῖον ἔσται γενέσθαι. ἀλλὰ μὴν οὐδ' ἐν τοῖς πέρας ἔχουσι τοῦτ' ἔσται εἰπεῖν ἀληθῶς, ὅτι ἀπλῶς ἀνάγκη γενέσθαι, οἷον οἰκίαν, ὅταν θεμέλιος γένηται· ὅταν γὰρ γένηται, εἰ μὴ ἀεὶ τοῦτο ἀνάγκη γίνεσθαι, συμβήσεται ἀεὶ εἶναι τὸ ἐνδεχόμενον μὴ ἀεὶ εἶναι. ἀλλὰ δεῖ τῇ γενέσει ἀεὶ
 35 εἶναι, εἰ ἐξ ἀνάγκης αὐτοῦ ἐστὶν ἡ γένεσις· τὸ γὰρ
 338 a ἐξ ἀνάγκης καὶ ἀεὶ ἅμα· ὃ γὰρ εἶναι ἀνάγκη οὐχ οἷόν τε μὴ εἶναι· ὥστ' εἰ ἔστιν ἐξ ἀνάγκης, αἰδιὸν ἐστι, καὶ εἰ αἰδιον, ἐξ ἀνάγκης. καὶ εἰ ἡ γένεσις τοίνυν ἐξ ἀνάγκης, αἰδιος ἡ γένεσις τούτου, καὶ εἰ αἰδιος, ἐξ ἀνάγκης.

Εἰ ἄρα τινὸς ἐξ ἀνάγκης ἀπλῶς ἡ γένεσις,
 5 ἀνάγκη ἀνακυκλεῖν καὶ ἀνακάμπτειν. ἀνάγκη γὰρ ἥτοι πέρας ἔχειν τὴν γένεσιν ἢ μή, καὶ εἰ μή, ἢ

^a The argument is as follows: let x be one of the future members of the series of events, x 's occurrence is contingent on the future occurrence of a still later member of the series, which is itself contingent on a still later member, y . The occurrence of every subsequent member of the infinite series is therefore conditionally, not absolutely, necessary. If x 's occurrence were absolutely necessary, x would be the begin-
 324

COMING-TO-BE AND PASSING-AWAY, II. 11

Now if the series is to go on indefinitely downwards, any particular later member of the series must come-to-be not by absolute, but only by conditional, necessity ; for it will always be necessary that another later member of the series should exist first in order to make it necessary that the earlier member of the series should come-to-be. Hence, since the infinite has no beginning, neither will there be any primary member of the series which will make it necessary for the other members to come-to-be.^a

[And further, it will not be possible to say with truth, even in the case of members of a series which is limited, that there is an absolute necessity that they should come-to-be. For example, a house will not necessarily come-to-be when its foundations have come-to-be ; for unless it is always necessary for a house to come-to-be, the result will be that when its foundations have come-to-be, a thing, which need not always be, must always be. No : if its coming-to-be is of necessity, there must be an "always" about its coming-to-be ; for what must *necessarily* be, must at the same time *always* be, since what "must necessarily be" cannot "not-be" ; hence, if a thing is "of necessity," it is eternal, and, if it is eternal, it is "of necessity" ; if, therefore, the coming-to-be of a thing is "of necessity," it is eternal and, if it is eternal, it is "of necessity."

If, then, the coming-to-be of anything is absolutely necessary, it must be cyclical and return upon itself ; for coming-to-be must either have a limit or not have a limit, and if it has not a limit, it must proceed either

ning of the series (*i.e.* would necessitate the earlier members) ; but the series is infinite and therefore has no beginning or end.

338 a

εἰς εὐθὺν ἢ κύκλῳ. τούτων δ' εἴπερ ἔσται αἰδῖος,
οὐκ εἰς εὐθὺν οἶόν τε διὰ τὸ μηδαμῶς εἶναι ἀρχὴν
μήτ' ἂν κάτω, ὥς ἐπὶ τῶν ἐσομένων, λαμβάνομεν,
μήτ' ἄνω, ὥς ἐπὶ τῶν γινομένων· ἀνάγκη δ' εἶναι
10 ἀρχὴν, μὴ πεπερασμένης οὔσης, καὶ αἰδῖον εἶναι.
διὸ ἀνάγκη κύκλῳ εἶναι. ἀντιστρέφειν ἄρα ἀνάγκη
ἔσται, οἶον εἰ τοδὶ ἐξ ἀνάγκης, καὶ τὸ πρότερον
ἄρα· ἀλλὰ μὴν εἰ τοῦτο, καὶ τὸ ὕστερον ἀνάγκη
γενέσθαι. καὶ τοῦτο αἰεὶ δὴ συνεχῶς· οὐδὲν γὰρ
τοῦτο διαφέρει λέγειν διὰ δύο ἢ πολλῶν. ἐν τῇ
15 κύκλῳ ἄρα κινήσει καὶ γενέσει ἐστὶ τὸ ἐξ ἀνάγκης
ἀπλῶς· καὶ εἴτε κύκλῳ, ἀνάγκη ἕκαστον γίνεσθαι
καὶ γεγονέναι, καὶ εἰ ἀνάγκη, ἢ τούτων γένεσις
κύκλῳ.

Ταῦτα μὲν δὴ εὐλόγως, ἐπεὶ αἰδῖος καὶ ἄλλως
ἐφάνη ἢ κύκλῳ κίνησις καὶ ἢ τοῦ οὐρανοῦ, ὅτι
338 b ταῦτα ἐξ ἀνάγκης γίνεται καὶ ἔσται, ὅσαι ταύτης
κινήσεις καὶ ὅσαι διὰ ταύτην· εἰ γὰρ τὸ κύκλῳ
κινούμενον αἰεὶ τι κινεῖ, ἀνάγκη καὶ τούτων κύκλῳ
εἶναι τὴν κίνησιν, οἶον τῆς ἄνω φορᾶς οὔσης κύ-
κλῳ ὁ ἥλιος¹ ὠδί, ἐπεὶ δ' οὕτως, αἰ ὥραι διὰ τοῦτο

¹ κύκλῳ ὁ ἥλιος F, Bonitz.

in a straight line or in a circle. But of these alternatives, if it is to be eternal, it cannot proceed in a straight line, because it can have no source,^a whether we take the members of the series downwards as future events or upwards as past events. But there must be a source of coming-to-be, though without coming-to-be itself being limited, and it must be eternal. Therefore, it must be a cyclical process. It will, therefore, have to return upon itself; for example, if a certain member of the series is necessary, then the one before it is also necessary, and further, if the latter is necessary, then the one which follows must necessarily come-to-be. And this goes on always continuously; for it makes no difference whether we speak of a sequence of two or many members of the series. Therefore, it is in cyclical movement and cyclical coming-to-be that absolute necessity is present, and if the process is cyclical, each member must necessarily come-to-be and have come-to-be, and, if this necessity exists, their coming-to-be is cyclical.

This conclusion is only reasonable, since cyclical movement, that is, the movement of the heavens, has been shown^b on other grounds to be eternal, because its own movements and the movements which it causes come-to-be of necessity and will continue to do so; for if that which moves in a cycle is continually seeking something else in motion, the movement of those things which it moves must also be cyclical. For example, since the upper revolution is cyclical, the sun moves in a particular way, and since this is so the seasons come-to-be in a cycle and

not involve an ἀρχή from which coming-to-be might derive its necessity.

^b *Phys.* viii. 7-9.

5 κύκλῳ γίνονται καὶ ἀνακάμπουσιν, τούτων δ' οὕτω γινομένων πάλιν τὰ ὑπὸ τούτων.

Τί οὖν δὴ ποτε τὰ μὲν οὕτω φαίνεται, οἷον ὕδατα καὶ ἀήρ κύκλῳ γινόμενα, καὶ εἰ μὲν νέφος ἔσται, δεῖ ὕσαι, καὶ εἰ ὕσει γε, δεῖ καὶ νέφος εἶναι, ἄνθρωποι δὲ καὶ ζῶα οὐκ ἀνακάμπουσιν εἰς αὐτοὺς ὥστε
 10 πάλιν γίνεσθαι τὸν αὐτόν (οὐ γὰρ ἀνάγκη, εἰ ὁ πατήρ ἐγένετο, σὲ γενέσθαι· ἀλλ' εἰ σύ, ἐκείνον, εἰς εὐθὺ δὲ ἔοικεν εἶναι αὕτη ἢ γένεσις); ἀρχὴ δὲ τῆς σκέψεως πάλιν αὕτη, πότερον ὁμοίως ἅπαντα ἀνακάμπει ἢ οὐ, ἀλλὰ τὰ μὲν ἀριθμῶ τὰ δὲ εἶδει μόνον. ὅσων μὲν οὖν ἄφθαρτος ἢ οὐσία ἢ κινου-
 15 μένη, φανερόν ὅτι καὶ ἀριθμῶ ταῦτα ἔσται (ἢ γὰρ κίνησις ἀκολουθεῖ τῷ κινουμένῳ), ὅσων δὲ μὴ ἀλλὰ φθαρτή, ἀνάγκη τῷ εἶδει, ἀριθμῶ δὲ μὴ ἀνακάμπειν. διὸ ὕδωρ ἐξ ἀέρος καὶ ἀήρ ἐξ ὕδατος εἶδει ὁ αὐτός, οὐκ ἀριθμῶ. εἰ δὲ καὶ ταῦτα ἀριθμῶ, ἀλλ' οὐχ ὧν ἢ οὐσία γίνεται οὔσα τοιαύτη οἷα ἐνδέχεσθαι μὴ εἶναι.

^a The sun moves in a circle in the ecliptic, and solar motion causes the cyclical changes of season, on which depend the vital periods of living things upon the earth.

^b And not to be cyclical.

^c In some cycles the same individual always recurs, in others successive individuals of the same species.

^d As was the doctrine of Empedocles (*cf.* 315 a 4 ff.).

COMING-TO-BE AND PASSING-AWAY, II. 11

return upon themselves ; and since they come-to-be in this manner, so do those things which they cause to come-to-be.^a

Why, then, is it that some things evidently come-to-be cyclically, for example rains and air, and if there is to be cloud, it must rain, and if it is to rain, there must also be a cloud, yet men and animals do not return upon themselves, so that the same creature comes-to-be a second time ? For there is no necessity, because your father came-to-be, that you should come-to-be ; but if you are to come-to-be, he must have done so ; and in this case the course of coming-to-be seems to be in a straight line.^b The starting-point for the discussion of this problem is this, to ask the question again whether all things alike return upon themselves, or whether some things recur *numerically* and others only specifically.^c Therefore, obviously, those things of which the substance (which is what is moved) is imperishable will be numerically the same ; for the nature of the movement depends on that of the thing moved ; but those things which are not of this kind but perishable must recur specifically and not numerically. Hence, when Water comes-to-be from Air or Air from Water, the Water or the Air is the same specifically but not numerically ; and if these things also do seem numerically the same,^d yet this is not true of those things whose " substance " comes-to-be, when it is such that it is possible for it not to be.



PSEUDO-ARISTOTLE
DE MUNDO

INTRODUCTION

ANALYSIS

THE treatise opens with a short introductory chapter, commending to Alexander the study of "the cosmos and the greatest things in the cosmos," and continues with a description of the various parts of the cosmos, working from the region of the aether on the outside of the sphere to the earth at the centre. Chapter 2 describes the shape, the arrangement and the material of the heavens, and indicates very briefly the nature of the "fiery element" and the air that lie inside the outer sphere of aether. Chapter 3 describes the geography of the sea and the earth; the author naturally concentrates on the "inhabited world," though he maintains that there are other inhabited worlds also, beyond the seas. Chapter 4 is a very summary account of the "most notable phenomena in and about the inhabited world"; a section on meteorology, including an elaborate catalogue of winds, is followed by a description of the things that happen on or in the earth or sea—volcanic eruptions, earthquakes, tidal waves, etc.

The last sentence of Chapter 4 introduces the main theme of the work: there are many changes in the sublunary world, but the system as a whole remains constant, and is subject neither to generation nor to

[ARISTOTLE]

destruction. In Chapter 5 the language is heightened in what is virtually a hymn to the eternal cosmos. Chapters 6 and 7 tell of the cause that ensures its eternity—the god who rules everything with his all-pervading power. This god is described in Chapter 6 by means of a series of similes, which show how a remote and transeendent god can maintain the order and arrangement of the cosmos without personal intervention ; Chapter 7 lists a number of names by which God is known and shows how they arise from various aspects of his function.

PHILOSOPHY AND RELIGION

Before examining the problem of the authorship and date of the *De Mundo*, we must consider its purpose and its philosophical position. It is an open letter, written with the most careful attention to style and language, summarizing persuasively the results of a study of the cosmos. The open letter was a common form of literary expression, particularly for protreptic discourses ; the outstanding examples are Isocrates' *Ad Nicoclem* and Aristotle's lost *Protrepticus*, addressed to Themison, the prince of Cyprus. The *De Mundo* shows many similarities to these protreptic addresses in style ; but the author's purpose, emphasized several times, is to provide a summary of his subject, and in this he approaches the pattern of Epicurus's letters or the popular " Introductions " (εἰσαγωγαί) of the Hellenistic period.

The author's attitude of mind is given in a word in the first chapter : " let us theologize (θεολογῶμεν) about all these things." A.-J. Festugière has shown ^a

^a *Le Dieu cosmique*, pp. 341 ff.

ON THE COSMOS

how typical this is of that “ *koine spirituelle* ” which grew in the late Hellenistic age and flowered in the Roman Empire ; nature is explored, not as the object of scientific enquiry, but as the expression of the cosmic deity, and the results are presented straightforwardly as dogma.

The theology and cosmology of the *De Mundo* is, in general, Peripatetic, but the author borrows his details from many schools. Parallel passages and possible sources have been analysed in great detail by W. Capelle, W. L. Lorimer and Joseph P. Maguire,^a and there is no need to repeat their analysis. Capelle traced many of the details to Posidonius, and this view was for many years generally accepted. Maguire, however, found no reason to believe that anything came from Posidonius except some of the meteorology, and showed that the closest parallels are in the Neo-Pythagorean writers ; he established at least that we cannot attribute a doctrine to Posidonius simply because it occurs in the *De Mundo*, but it would be surprising if a work written after the time of Posidonius were not considerably influenced by him. The paramount difficulty is that the author was an eclectic, living in an age when eclecticism was the fashion and there was a great deal of common ground between different schools ; it is therefore sometimes impossible to say which authors, or even which schools, were chosen as sources.

The scientific chapters of the *De Mundo* are typical of many “ introductions ” and summaries, and very likely are themselves derived from similar elementary handbooks rather than from the detailed expositions of original authors. The doctrine of the cosmic deity,

^a See Bibliographical Note, below.

which is the climax of the book, developed gradually in the history of Greek religion. Its chief exponents were the Stoics, and no doubt the *De Mundo* is influenced by Stoic religious thought. But the author rejects an important part of the Stoic doctrine : his god is not immanent in the world, interpenetrating all things, but remote, unmoved and impassive. He maintains the order of the cosmos by means of an undefined "power," which relieves him of the dishonourable necessity of personal intervention.

Clearly we have here a development, however remote, of Aristotle's Unmoved Mover. At first sight the god of the *De Mundo* seems far removed from the god of *Physics* viii and *Metaphysics* Λ, who is inferred as the necessary result of a theory of motion, whose only activity is thought which has itself as its object, and who moves "as the object of love." Aristotle himself, however, seems to have spoken with a rather different voice in his published works. In the *De Philosophia* he said that the orderly movement of the heavenly bodies was one of the reasons for man's belief in gods. Cicero reports an elaborate passage from Aristotle to this effect ^a : suppose there were men who had lived all their lives in caves under the earth and were then released ; "when they saw, suddenly, the earth and seas and sky, when they learnt the vastness of the clouds and the force of the winds, when they beheld the sun and learnt its great size and beauty and the efficacy of its work, that it spreads its light over all the sky and makes day, and when night darkened the lands and then they saw the whole sky adorned with a pattern of stars, and the changes in the moon's light

^a Cic. *De Nat. Deor.* ii. 37 = Arist. fr. 12 Rose.

ON THE COSMOS

as it waxes and wanes, and the rising and setting of them all, and their courses planned and immutable for all eternity—when they saw this, they would think at once that there are gods and that these mighty works are the works of gods.” This is close to the spirit of the *De Mundo*.

In one other important respect the author sides with the Peripatetics and Neo-Pythagoreans against the Stoics. Most of the Stoics believed that the element of fire was more powerful than the other elements, and that it periodically enveloped the cosmos in a universal conflagration (ἐκπύρωσις). Pseudo-Aristotle is emphatic in his rejection of this doctrine: the elements are equally balanced and there is no universal conflagration, nor any other kind of cosmic destruction. The eternity of the cosmos was maintained by Aristotle in the lost *De Philosophia*,^a and in the *De Caelo*.^b In Hellenistic times it was believed by the Stoic Panaetius, but his successor Posidonius apparently reverted again to ἐκπύρωσις. There are two Hellenistic treatises extant which argue that the cosmos is eternal—*De Universi Natura*, falsely attributed to the Pythagorean Ocellus of Lucania, and Philo (or Pseudo-Philo), *De Aeternitate Mundi*.

AUTHOR AND DATE

It is almost universally agreed that this treatise is not a genuine work of Aristotle. The style and various details of doctrine all make it unthinkable that it was written either by Aristotle himself or during his lifetime; but no such certainty is possible about the identity of the author or the date of composition.

^a Cf. fr. 22 Rose.

^b Bk. I. 10-12.

The first problem to be decided is whether the treatise was attributed to Aristotle by the author or by someone else. The probability is that it was a deliberate forgery. Attempts have been made to show that the Alexander to whom the work is addressed is someone other than Alexander the Great: but it is difficult to find another Alexander who might be called "the best of princes."^a Probably the author followed the example of an earlier forger, the author of the *Rhetoric to Alexander*, in the hope that his work might be taken as a respectful tribute from the master to his most famous pupil.

The late Hellenistic author Demetrius^b says that Aristotle's letters to Alexander were more like treatises (*συγγράμματα*) than real letters. A man called Artemon, who is mentioned by Demetrius, arranged the letters then supposed to be by Aristotle into eight books. We can conclude from this that at the time of Demetrius, who was roughly contemporary with Pseudo-Aristotle, there was in circulation a collection of Aristotle's letters, which included letters to Alexander which were in the form of "treatises." It would seem therefore that the author of the *De Mundo* had ample precedent for the form of his work, whether the *De Mundo* was known to Demetrius or not.

The habit of attributing one's writings to an older and greater author in the same tradition was par-

^a Max Pohlenz (*Die Stoa*, 1948, pp. 361-362) returns to a suggestion of Bernays that the addressee is Tiberius Alexander, nephew of Philo and governor of Egypt soon after A.D. 63.

^b *On Style* iv. 234. Demetrius wrote some time after 100 B.C. (see J. F. Lockwood, in *C.R.* lii (1938), p. 59) and probably before A.D. 100.

ON THE COSMOS

ticularly common among the Pythagoreans of the Hellenistic age ; the author of the *De Mundo* owes much to these Neo-Pythagoreans, and he certainly reproduces enough genuinely Aristotelian thought to make it reasonable that he should wish to usurp Aristotle's name.

This is an important point. Those who have proved that the work is a forgery have sometimes overlooked that it is a forgery of *Aristotle*, and that in this fact we might find a little help in dating the treatise. For if the author is imitating Aristotle at all, it is surely the Aristotle of the *Protrepticus* and *De Philosophia*, the Aristotle whose " flumen orationis aureum " was praised by Cicero,^a rather than the Aristotle of the school-treatises which survive to-day. The school-treatises were either lost or disregarded after the death of Theophrastus, and did not begin to occupy the attention of the learned world again until the appearance of Andronicus's edition in the late first century B.C.^b

These considerations will be variously interpreted. Those who believe that knowledge of Aristotle's work was *absolutely* confined to the published writings until Andronicus's edition, will say that the author of the *De Mundo* shows knowledge of doctrines (e.g. of the Unmoved Mover, if this was not contained in the *De Philosophia*, and various meteorological details) which were known only after Andronicus. But it is likely that much of Aristotle's doctrine was known throughout the period, at least in his own school,

^a *Acad. Pr.* ii. 38. 119.

^b The date usually given for this is c. 40 B.C. I. Düring (*Notes on the History of the Transmission of Aristotle's Writings*, Göteborg, 1950) thinks this is the earliest possible date, and would prefer 40-20 B.C.

[ARISTOTLE]

even though it did not appear in the published works. I am inclined to believe that the author of the *De Mundo* could have known all the Aristotelian matter that he reproduces *before* the publication of Andronicus's edition, and that the style and manner of the work indicate a date before this edition made Aristotle's school-treatises more widely known.

Other evidence for the date is confused and difficult. It is certain that Apuleius *De Mundo* is a translation of the Greek, but it is not quite certain that this is genuinely by Apuleius. If it is, we have a *terminus ante quem* of c. A.D. 140. The work seems to have been known to Maximus of Tyre and must therefore be before A.D. 180–190. From other reports, references and imitations in later authors nothing firmer than this can be deduced.

To reach a *terminus post quem* by an analysis of the sources is equally difficult, since it is usually hard to say who was the first to express a particular doctrine. Nevertheless some of the meteorology appears to depend on Posidonius and his pupil Aselepiodotus, and we might therefore give c. 50 B.C. as the *terminus*. There is no agreement about the date of the Neo-Pythagorean sources. Attempts have been made to argue from the silence of Cicero, Seneca and Pliny, but arguments from silence do not carry much weight.

The date has been given by various scholars as follows : Zeller, 1st cent. A.D. ; Diels, in the reign of Augustus ; Wilamowitz, in the Julio-Claudian dynasty ; Capelle, the first half of the 2nd cent. A.D. ; Lorimer, probably A.D. 40–140 ; Maguire and Festugière, the first few decades of the 1st cent. A.D. In my view there is some slight reason for saying that

ON THE COSMOS

it was written before or not long after Andronicus's edition, and virtually no reason for choosing any other time within the limits already mentioned.^a

BIBLIOGRAPHICAL NOTE

The *editio princeps* (1497) was based on a single ms., and this remained the common text until Bekker added the results of collation of four more mss. in the Berlin *Aristotle* (1831). Parts of the treatise were edited by Wilamowitz and Wendland and printed in Wilamowitz's *Griechisches Lesebuch*, Text II (1906), pp. 188-199.

W. L. Lorimer took into account the readings of over seventy mss., the quotations in Stobaeus and others, the Latin version of Apuleius, the Armenian and Syriac versions, and two mediaeval Latin versions. He published his results in three books: *The Text Tradition of Ps.-Aristotle "De Mundo"* (St. Andrews University Publications, xviii, 1924); *Some Notes on the Text of Ps.-Aristotle "De Mundo"* (St. Andrews University Publications, xxi, 1925); and *Aristotelis De Mundo* (Paris, 1933). The last of these contains the Greek text with a very detailed *apparatus criticus* and a German translation by E. König of the Syriac version (chaps. v-vii only).

On the sources, the most important works are: W. Capelle, "Die Schrift von der Welt," *Neue Jahrb. f. d. klass. Alt.* xv (1905), pp. 529-568; and Joseph P. Maguire, "The Sources of Ps.-Aristotle 'De Mundo,'" *Yale Classical Studies*, vi (1939).

The important article by Hans Strohm, "Studien

^a Prof. E. H. Warmington has pointed out to me that the geography of ch. 3 confirms an early date.

[ARISTOTLE]

zur Schrift von der Welt," *Mus. Helv.* ix (1952), pp. 137-175, did not reach me until this book was in proof. Strohm agrees with me in minimizing the influence of Posidonius and in marking the connexions with early Aristotle.

The late Prof. E. S. Forster translated the *De Mundo* for the Oxford translation of Aristotle (1914). A.-J. Festugière translates most of it into French, and adds important comments, in *La Révélation d'Hermès Trismégiste*, vol. ii, *Le Dieu cosmique* (Paris, 1949).

I am indebted to all these, and particularly (as all students of the *De Mundo* must be) to W. L. Lorimer.

TEXT

The text is based on Bekker's edition in the Berlin *Aristotle*; I have indicated deviations from Bekker, except those that seem trivial.

The four mss. used by Bekker are designated as follows :

O = Vat. 316.

P = Vat. 1339.

Q = Marc. 200.

R = Paris. 1102.

Where necessary I have added references to mss. collated by Lorimer, as follows :

B = Hieros. Patr. 108.

C = Laur. 87, 14.

D = Paris. 1302.

E = Vat. Urbin. 125.

F = Laur. 87, 16.

G = Vat. 1025.

W = Paris. 1038.

Z = Paris. 2381.

ON THE COSMOS

Stob.=Stobaeus. Ap. indicates reading confirmed by the Latin of Apuleius, *De Mundo*.

Nearly all the deviations from Bekker follow Lorimer; to avoid complicating the notes unduly, where I have followed Lorimer against Bekker and the mss. are fairly equally divided, I have used the abbreviations "Bekk." and "Lor." without listing the mss. "Lor. (*Notes*)" refers to the second and "Lor. (*De Mundo*)" to the third of Lorimer's works cited in the Bibliographical Note above.

I wish to record my indebtedness to Professor T. B. L. Webster for reading my work in typescript; I am very grateful for his criticisms and suggestions.

D. J. F.

ΑΡΙΣΤΟΤΕΛΟΥΣ ΠΕΡΙ ΚΟΣΜΟΥ

391 a 1 1. Πολλάκις μὲν ἔμοιγε θεῖόν τι καὶ δαιμόνιον
ὄντως χρῆμα, ὦ Ἀλέξανδρε, ἢ φιλοσοφία ἔδοξεν
εἶναι, μάλιστα δὲ ἐν οἷς μόνη διαραμένη πρὸς τὴν
τῶν ὄλων θέαν ἐσπούδασε γινῶναι τὴν ἐν αὐτοῖς
5 ἀλήθειαν, καὶ τῶν ἄλλων ταύτης ἀποστάντων διὰ
τὸ ὕψος καὶ τὸ μέγεθος, αὕτη τὸ πρᾶγμα οὐκ
ἔδεισεν οὐδ' αὐτὴν τῶν καλλίστων ἀπηξίωσεν,
ἀλλὰ καὶ συγγενεστάτην ἑαυτῇ καὶ μάλιστα πρέ-
πουσαν ἐνόμισεν εἶναι τὴν ἐκείνων μάθησιν. ἐπειδὴ
γὰρ οὐχ οἷόν τε ἦν τῷ σώματι εἰς τὸν οὐράνιον
ἀφικέσθαι τόπον καὶ τὴν γῆν ἐκλιπόντα τὸν οὐρά-
10 νιον ἐκείνον χώρον κατοπτεῦσαι, καθάπερ οἱ ἀνό-
τοί ποτε ἐπενόουν Ἀλφάδαι, ἢ γοῦν ψυχὴ διὰ
φιλοσοφίας, λαβοῦσα ἡγεμόνα τὸν νοῦν, ἐπεραιώθη
καὶ ἐξεδήμησεν, ἀκοπιάτόν τινα ὁδὸν εὐροῦσα, καὶ
τὰ πλεῖστον ἀλλήλων ἀφεστῶτα τοῖς τόποις τῇ
διανοίᾳ συνεφρόνησε, ραδίως, οἶμαι, τὰ συγγενῇ
15 γνωρίσασα, καὶ θείῳ ψυχῆς ὄμματι τὰ θεῖα κατα-

^a See Introduction, p. 338.

ARISTOTLE ON THE COSMOS

1. I HAVE often thought, Alexander,^a that philosophy is a divine and really god-like activity, particularly in those instances when it alone has exalted itself to the contemplation of the universe and sought to discover the truth that is in it ; the other sciences shunned this field of inquiry because of its sublimity and extensiveness ; philosophy has not feared the task or thought itself unworthy of the noblest things, but has judged that the study of these is by nature most closely related to it and most fitting. It was not possible by means of the body to reach the heavenly region or to leave the earth and explore that heavenly place, in the manner once attempted by the foolish Aloadae ^b : so the soul, by means of philosophy, taking the mind as its guide, has crossed the frontier, and made the journey out of its own land by a path that does not tire the traveller. It has embraced in thought the things that are most widely separated from each other in place ; for it had no difficulty, I think, in recognizing things that were related to it, and with “ the soul’s divine eye ” ^c it

^b Otus and Ephialtes, the mythical Giants, who tried to reach heaven by piling Pelion on Ossa.

^c Probably a quotation : *cf.* the eye of the soul in Plato, *Rep.* 533 D.

391 a

λαβούσα, τοῖς τε ἀνθρώποις προφητεύουσα. τοῦτο δὲ ἔπαθε, καθ' ὅσον οἶόν τε ἦν, πᾶσιν ἀφθόνως μεταδοῦναι βουλευθεῖσα τῶν παρ' αὐτῇ τιμίων. διὸ καὶ τοὺς μετὰ σπουδῆς διαγράψαντας ἡμῖν ἐνὸς τόπου φύσιν ἢ μιᾶς σχῆμα πόλεως ἢ ποταμοῦ μέγε-
 20 θος ἢ ὄρους κάλλος, οἷά τινες ἤδη πεποιήκασι, φράζοντες οἱ μὲν τὴν Ὀσσαν, οἱ δὲ τὴν Νύσσαν,¹ οἱ δὲ τὸ Κωρύκιον ἄντρον, οἱ δὲ ὅτιοῦν ἔτυχε τῶν ἐπὶ μέρους, οἰκτίσειεν ἂν τις τῆς μικροψυχίας, τὰ τυχόντα ἐκπεπληγμένους καὶ μέγα φρονούντας ἐπὶ
 25 θεωρία μικρᾷ. τοῦτο δὲ πάσχουσι διὰ τὸ ἀθέατοι τῶν κρειττόνων εἶναι, κόσμου λέγω καὶ τῶν ἐν κόσμῳ μεγίστων· οὐδέποτε γὰρ ἂν τούτοις γνη-
 391 b σίως ἐπιστήσαντες ἐθαύμαζόν τι τῶν ἄλλων, ἀλλὰ πάντα αὐτοῖς τὰ ἄλλα μικρὰ κατεφαίνετο ἂν καὶ οὐδενὸς ἄξια πρὸς τὴν τούτων ὑπεροχὴν.

Λέγωμεν δὴ ἡμεῖς καί, καθ' ὅσον ἐφικτόν, θεολογῶμεν περὶ τούτων συμπάντων, ὡς ἕκαστον
 5 ἔχει φύσεως καὶ θέσεως καὶ κινήσεως. πρέπειν δέ γε οἶμαι καὶ σοί, ὄντι ἡγεμόνων ἀρίστῳ, τὴν τῶν μεγίστων ἱστορίαν μετιέναι, φιλοσοφία τε μηδὲν μικρὸν ἐπινοεῖν, ἀλλὰ τοῖς τοιούτοις δώροις δεξι-
 οὔσθαι τοὺς ἀρίστους.

2. Κόσμος μὲν οὖν ἐστὶ σύστημα ἐξ οὐρανοῦ καὶ
 10 γῆς καὶ τῶν ἐν τούτοις περιεχομένων φύσεων. λέγεται δὲ καὶ ἑτέρως κόσμος ἢ τῶν ὅλων τάξις τε καὶ διακόσμησις, ὑπὸ θεοῦ² τε καὶ διὰ θεὸν³ φυλατ-

¹ Νύσσαν Lor. : Νύσαν Bekk.

² θεοῦ codd. Stob. Lor. : θεῶν codd. al. Bekk.

³ θεὸν codd. Lor. : θεῶν codd. al. Stob. Bekk.

^a Cf. Pausanias x. 32. 2.

^b Cf. Introduction, p. 334.

ON THE COSMOS, 1-2

grasped things divine, and interpreted them for mankind. This came about because it wished to impart to all unsparingly, as far as possible, a share of its own privileges. So those who have earnestly described to us the nature of a single place, or the plan of a single city, or the size of a river, or the beauty of a mountain, as some have done before now—some of them tell us of Ossa, some of Nyssa, others of the Corycian cave,^a or whatever other detail it happens to be—all these might well be pitied for their meanness of spirit, since they are overawed by commonplaces and pride themselves on insignificant observations. The reason is that they are blind to the nobler things—I mean the cosmos and the greatest features of the cosmos. For if they once genuinely gave their attention to these things, they would never wonder at any other ; everything else would appear small and worthless to them, in comparison with the matchless superiority of these.

Let us, then, take up the subject, and so far as they are attainable let us theologize ^b about all the greatest features of the cosmos, discussing the nature, position and motion of each. It is right, I think, that even you, the best of princes, should undertake the study of the greatest things, and that philosophy should have no humble intentions, but should greet the most excellent men with worthy gifts.

2. *Cosmos*, then, means a system composed of heaven and earth and the elements contained in them.^c In another sense, *cosmos* is used to signify the orderly arrangement of the universe, which is preserved by God and through God. The centre of

^a So also Chrysippus *ap.* Arius Didymus fr. 31 (Diels, *Dox. Graec.* pp. 465-466), and Posidonius *ap.* Diog. Laert. vii. 138.

τομένη. ταύτης δὲ τὸ μὲν μέσον, ἀκίνητόν τε καὶ
 ἐδραῖον ὄν, ἢ φερέσβιος εἵληχε γῆ, παντοδαπῶν
 ζώων ἐστία τε οὔσα καὶ μήτηρ. τὸ δὲ ὑπερθεν
 15 αὐτῆς, πᾶν τε καὶ πάντα πεπερατωμένον εἰς¹ τὸ
 ἄνωτάτω, θεῶν οἰκητήριον, οὐρανὸς ὠνόμασται.
 πλήρης δὲ ὦν σωμάτων θείων, ἃ δὴ καλεῖν ἄστρο
 εἰώθαμεν, κινούμενος κίνησιν αἰδίου, μιᾷ περιαγωγῇ
 καὶ κύκλῳ συναναχορεύει πᾶσι τούτοις ἀπαύστως
 δι' αἰῶνος. τοῦ δὲ σύμπαντος οὐρανοῦ τε καὶ
 20 κόσμου σφαιροειδοῦς ὄντος καὶ κινουμένου, καθ-
 ἅπερ εἶπον, ἐνδελεχῶς, δύο ἀκίνητα ἐξ ἀνάγκης
 ἐστι σημεία, καταντικρὺ ἀλλήλων, καθάπερ τῆς ἐν
 τὸρνῳ κυκλοφορουμένης σφαίρας, στερεὰ μένοντα
 καὶ συνέχοντα τὴν σφαῖραν, περὶ ἃ ὁ πᾶς ὄγκος
 25 κύκλῳ στρέφεται². καλοῦνται δὲ οὗτοι πόλοι· δι'
 ὧν εἰ νοήσαιμεν ἐπεξευγμένην εὐθείαν, ἣν τινες
 392 a ἄξονα καλοῦσι, διάμετρος ἔσται τοῦ κόσμου, μέσον³
 μὲν ἔχουσα τὴν γῆν, τοὺς δὲ δύο πόλους πέρατα.
 τῶν δὲ ἀκινήτων πόλων τούτων ὁ μὲν αἰὲ φανερός
 ἐστὶν ὑπὲρ κορυφὴν ὧν κατὰ τὸ βόρειον κλίμα,
 ἀρκτικὸς καλούμενος, ὁ δὲ ὑπὸ γῆν αἰὲ κατακέ-
 5 κρυπται, κατὰ τὸ νότιον, ἀνταρκτικὸς καλούμενος.

Οὐρανοῦ δὲ καὶ ἄστρον οὐσίαν μὲν αἰθέρα καλοῦ-

¹ εἰς codd. Lor. : ἤs P Bekk.

² πᾶς ὄγκος κύκλῳ στρέφεται Stob. Lor. : πᾶς κόσμος κινεῖται.
 ὁ μὲν οὖν κόσμος ἐν κύκλῳ περιστρέφεται codd. Bekk.

ON THE COSMOS, 2

the cosmos, which is unmoved and fixed, is occupied by "life-bearing earth," ^a the home and mother of living beings of all kinds. The region above it, a single whole with a finite upper limit everywhere, the dwelling of the gods, is called *heaven*. It is full of divine bodies which we call *stars*; it moves eternally, and revolves in solemn choral dance ^b with all the stars in the same circular orbit unceasingly for all time. The whole of the heaven, the whole cosmos, ^c is spherical, and moves continuously, as I have said; but there are necessarily two points which are unmoved, opposite one another, just as in the case of a ball being turned in a lathe; they remain fixed, holding the sphere in position, and the whole mass revolves in a circle round them; these points are called *poles*. If we think of a straight line joining these two together (some call this the *axis*), it will be a diameter of the cosmos, having the earth at its centre and the two poles at its extremities. One of these two stationary poles is always visible, above our heads in the North: it is called the *Arctic* ^d pole. The other is always hidden under the earth, in the South: it is called the *Antarctic* pole.

The substance of the heaven and the stars we call

^a Cf. Hesiod, *Theog.* 693.

^b Ps.-Aristotle seems to recall Euripides, *Ion* 1079 ὅτε καὶ Διὸς ἀστερωπὸς ἀνεχόρευσεν αἰθήρ, χορεύει δὲ σελάνα. Cf. also Soph. *Ant.* 1146 f. He develops the same image below, 399 a 14.

^c Ps.-Aristotle here uses κόσμος in a third sense, as a synonym for οὐρανός. This sense is quite common from Plato onwards.

^d The terms Arctic and Antarctic do not appear in extant literature before Hipparchus (2nd cent. B.C.).

³ μέσον TWZ L.or.: μέσσην codd. cet. Bekk.

μεν, οὐχ, ὥς τινες, διὰ τὸ πυρώδη οὖσαν αἶθεσθαι,
 πλημμελοῦντες περὶ τὴν πλείστον πυρὸς ἀπηλλα-
 μένην δύναμιν, ἀλλὰ διὰ τὸ αἰεὶ θεῖν κυκλοφορου-
 μένην, στοιχεῖον οὖσαν ἕτερον τῶν τεττάρων,
 ἀκήρατόν τε καὶ θεῖον. τῶν γε μὴν ἐμπεριεχομένων
 10 ἄστρον τὰ μὲν ἀπλανῆ τῷ σύμπαντι οὐρανῷ συμ-
 περιστρέφεται, τὰς αὐτὰς ἔχοντα ἔδρας, ὧν μέσος
 ὁ ζωοφόρος καλούμενος κύκλος ἐγκάρσιος διὰ τῶν
 τροπικῶν διέζωσται, κατὰ μέρος διηρημένος εἰς
 δώδεκα ζωδίων χώρας, τὰ δέ, πλανητὰ ὄντα, οὔτε
 15 τοῖς προτέροις ὁμοταχῶς κινεῖσθαι πέφυκεν οὔτε
 ἀλλήλοις, ἀλλ' ἐν ἐτέροις καὶ ἐτέροις κύκλοις, ὥστε
 αὐτῶν τὸ¹ μὲν προσγειότερον εἶναι, τὸ¹ δὲ ἀνώτερον.
 τὸ μὲν οὖν τῶν ἀπλανῶν πληθὸς ἐστὶν ἀνεξεύρετον
 ἀνθρώποις, καίπερ ἐπὶ μιᾷς κινουμένων ἐπιφανείας
 τῆς τοῦ σύμπαντος οὐρανοῦ· τὸ δὲ τῶν πλανήτων,
 20 εἰς ἑπτὰ μέρη κεφαλαιούμενον, ἐν τοσοῦτοις ἐστὶ
 κύκλοις ἐφεξῆς κειμένους, ὥστε αἰεὶ τὸν ἀνωτέρω
 μείζω τοῦ ὑποκάτω εἶναι, τοὺς τε ἑπτὰ ἐν ἀλλή-
 λοις ἐμπεριέχεσθαι, πάντας γε μὴν ὑπὸ τῆς τῶν
 ἀπλανῶν σφαίρας περιειληφθαι. συνεχῇ δὲ ἔχει αἰεὶ
 τὴν θέσιν ταύτη ὁ τοῦ Φαίνοντος ἄμα καὶ Κρόνου
 25 καλούμενος κύκλος, ἐφεξῆς δὲ ὁ τοῦ Φαέθοντος
 καὶ² Διὸς λεγόμενος, εἴθ' ὁ Πυρόεις, Ἡρακλέους
 τε καὶ Ἄρεος προσαγορευόμενος, ἐξῆς δὲ ὁ Στίλ-
 βων, ὃν ἱερὸν Ἑρμοῦ καλοῦσιν ἔνιοι, τινὲς δὲ

¹ τὸ . . . τὸ Lor. : τὸν . . . τὸν Bekk.

² καὶ Lor. : ὁ καὶ BD : om. cett.

ON THE COSMOS, 2

aether,^a not, as some think, because it is fiery in nature and so burns (they fall into error about its function, which is quite different from that of fire), but because it always moves in its circular orbit ; it is an element different from the four elements,^b pure and divine. Now, of the stars which are encompassed in it, some are *fixed* and move in concert with the whole heaven always keeping the same position in it ; in the middle of these the *circle of the zodiac*, as it is called, set obliquely through the tropics, passes round like a girdle, divided into the twelve regions of the zodiac. The others, the *planets*, move, according to their nature, at speeds different from the fixed stars and from each other, each in a different circle, in such a way that one is nearer the earth, another higher in the heavens. The number of the fixed stars is not to be known by men, although they all move on one visible surface, namely that of the whole heaven : but the class of planets contains seven units, arranged in the same number of circles in a series, so that the higher is always greater than the lower, and all the seven, though contained one within another, are nevertheless encompassed by the sphere of the fixed stars. The circle which is always in the position next to this sphere is that which is called the circle of Phaenon (the Bright one) or Cronus (Saturn) ; then comes the circle of Phaëthon (the Shiner) or Zeus (Jupiter) ; next Pyroeis (the Fiery one), named after Heracles or Ares (Mars) ; next Stilbon (the Glittering one) which some dedicate to Hermes (Mercury), some element : the Stoics identified it with fire. He rejects the derivation of the word from *αἰθεσθαι* (to burn) and relates it to *ἀεὶ θεῖν* (move always), as Plato and Aristotle did (*cf.* Plato, *Crat.* 410 B, Aristotle, *De Caelo* 270 b 22).

^b Earth, air, fire and water.

392 a

Ἀπόλλωνος· μεθ' ὃν ὁ τοῦ Φωσφόρου, ὃν Ἀφροδίτης, οἱ δὲ Ἥρας προσαγορεύουσιν, εἴτα ὁ ἥλιου, καὶ τελευταῖος ὁ τῆς σελήνης μέχρι γῆς ὀρίζεται.
 30 ὁ δὲ αἰθήρ τά τε θεῖα ἐμπεριέχει σώματα καὶ τὴν τῆς κινήσεως τάξιν.

Μετὰ δὲ τὴν αἰθέριον καὶ θεῖαν φύσιν, ἦντινα τεταγμένην ἀποφαίνομεν, ἔτι δὲ ἄτρεπτον καὶ ἀντεροίωτον καὶ ἀπαθῆ, συνεχῆς ἐστὶν ἡ δι' ὅλων παθητὴ τε καὶ τρεπτὴ, καί, τὸ σύμπαν εἰπεῖν,
 35 φθαρτὴ τε καὶ ἐπίκηρος. ταύτης δὲ αὐτῆς πρώτης
 392 b μὲν ἐστὶν ἡ λεπτομερὲς καὶ φλογώδης οὐσία, ὑπὸ τῆς αἰθερίου φύσεως πυρουμενὴ διὰ τὸ μέγεθος αὐτῆς καὶ τὴν ὀξύτητα τῆς κινήσεως· ἐν δὲ τῇ πυρώδει καὶ ἀτάκτῳ λεγομένην τά τε σέλα διάττει καὶ φλόγες ἀκοντίζονται καὶ δοκίδες τε καὶ βόθυνοι
 5 καὶ κομῆται λεγόμενοι στηρίζονται καὶ σβέννυνται πολλάκις.

Ἐξῆς δὲ ταύτης ὁ αἰὴρ ὑποκέχεται, ζοφώδης ὢν καὶ παγετώδης τὴν φύσιν· ὑπὸ δὲ κινήσεως¹ λαμπόμενος ἅμα καὶ διακαιόμενος λαμπρός² τε γίνεται καὶ ἀλεινός. ἐν δὲ τούτῳ, τῆς παθητῆς ὄντι καὶ αὐτῷ δυνάμεως καὶ παντοδαπῶς ἀλ-
 10 λουιουμένῳ, νέφη τε συνίσταται καὶ ὄμβροι καταράσσουσι, χιόνες τε καὶ πάχναι καὶ χάλαζαι πνοαί τε ἀνέμων καὶ τυφώνων, ἔτι τε βρονταὶ καὶ

¹ ἐκείνης BCWZ Stob. Ap. Lor. : κινήσεως codd. cet. Bekk.

² λαμπρός Lor. : λαμπρότερός Bekk.

^a This is the "Pythagorean" order of the planets, adopted by Aristotle, Eudoxus, Eratosthenes, and probably the early Stoics. The other order commonly given by ancient writers, the "Chaldean," puts Venus and Mercury below the sun; this order was adopted by Panaetius, and probably also by

to Apollo ; after this is the circle of Phosphorus (the Light-bearer), which some call after Aphroditê (Venus) and others after Hera ; then the circle of the sun ^a ; and the last, the circle of the moon, is bounded by the terrestrial sphere.^b The aether, then, contains the divine bodies and their ordered orbits.

After the aetherial and divine element, which is arranged in a fixed order, as we have declared, and is also unchangeable, unalterable and impassive, there comes next the element that is through the whole of its extent liable to change and alteration, and is, in short, destructible and perishable. The first part of this is the fine and fiery substance that is set aflame by the aether because of the latter's great size and the swiftness of its motion. In this *fiery and disorderly element*, as it is called, meteors and flames shoot across, and often *planks* and *pits* and *comets*, as they are called, stand motionless and then expire.^c

Next under this is spread the air, opaque and icy by nature, but when it is brightened and heated by movement, it becomes bright and warm.^d In the air, which itself also has the power to change, and alters in every kind of way, clouds are formed and rain falls in torrents ; there is snow, frost and hail, and gales and whirlwinds ; thunder and lightning,

Posidonius. Lorimer writes (*Notes*, p. 51) that there were few upholders of the "Pythagorean" order after 200 B.C., though it appears in an unknown astronomer in Rhodes of about 100 B.C. (*I.G.Ins.* i. 913).

^b γῆ here must refer to the whole "sublunary" sphere, not to the earth proper.

^c This is inconsistent with 395 a 29 ff. where these phenomena are put in the air.

^d The coldness of the air is a Stoic doctrine ; Aristotle said it was warm and capable of being inflamed by motion (*Meteor.* 341 a 18).

ἀστραπαὶ καὶ πτώσεις κεραυνῶν μυρίων τε γνόφων
 συμπληγάδες.

3. Ἐξῆς δὲ τῆς ἀερίου φύσεως γῆ καὶ θάλασσα
 15 ἐρήρεισται, φυτοῖς βρύουσα καὶ ζώοις πηγαῖς τε καὶ
 ποταμοῖς, τοῖς μὲν ἀνὰ γῆν ἐλιττομένοις, τοῖς δὲ
 ἀνερευγομένοις εἰς θάλασσαν. πεποίκιλται δὲ καὶ
 χλόαις μυρίαις ὄρεσί τε ὑψηλοῖς καὶ βαθυξύλοις
 δρυμοῖς καὶ πόλεσιν, ἃς τὸ σοφὸν ζῶον, ὁ ἄνθρωπος,
 20 ἰδρύσατο, νήσοις τε ἐναλίοις καὶ ἡπείροις. τὴν μὲν
 οὖν οἰκουμένην ὁ πολὺς λόγος εἰς τε νήσους καὶ
 ἡπείρους διεῖλεν, ἀγνοῶν ὅτι καὶ ἡ σύμπασα μία
 νήσός ἐστιν, ὑπὸ τῆς Ἀτλαντικῆς καλουμένης θα-
 λάσσης περιρρεομένη. πολλὰς δὲ καὶ ἄλλας εἰκὸς
 τῇσδε ἀντιπόρθμους ἄπωθεν κεῖσθαι, τὰς μὲν μεί-
 25 ζους αὐτῆς, τὰς δὲ ἐλάττους, ἡμῖν δὲ πάσας πλὴν
 τῇσδε ἀοράτους· ὅπερ γὰρ αἱ παρ' ἡμῖν νῆσοι
 πρὸς ταυτὶ τὰ πελάγη πεπόνθασιν, τοῦτο ἦδε ἡ
 οἰκουμένη πρὸς τὴν Ἀτλαντικὴν θάλασσαν πολλαί
 τε ἕτεραι πρὸς σύμπασαν τὴν θάλασσαν· καὶ γὰρ
 αὗται μεγάλαι τινές εἰσι νῆσοι μεγάλοις περικλυ-
 30 ζόμεναι πελάγεσιν. ἡ δὲ σύμπασα τοῦ ὑγροῦ
 φύσις ἐπιπολάζουσα, κατὰ τινὰς τῆς γῆς σπείλους
 τὰς καλουμένας ἀναπεφαγκυῖα¹ οἰκουμένας, ἐξῆς
 ἂν εἴη τῆς ἀερίου μάλιστα φύσεως. μετὰ δὲ ταύτην
 ἐν τοῖς βυθοῖς κατὰ τὸ μεσαίτατον τοῦ κόσμου
 συνερηρυσμένη γῆ πᾶσα καὶ πεπιεσμένη συνέστη-
 35 κεν, ἀκίνητος καὶ ἀσάλευτος· καὶ τοῦτ' ἔστι τοῦ

¹ ἀναπεφαγκυῖα conī. Usener Lor.: ἀναπεφυκυῖα codd.: Bekk.

^a Aristotle apparently thought nothing but sea lay from Gibraltar westwards to India (*Meteor.* 362 b 28). Strabo (i. 4. 6=65 c) notices the possibility of other inhabited worlds in his discussion of Eratosthenes.

ON THE COSMOS, 2-3

too, and falling thunderbolts, and the clash of innumerable storm-clouds.

3. Next to the element of air comes the fixed mass of earth and sea, full of plants and animals, and streams and rivers, some winding about the surface of the earth, others discharging themselves into the sea. This region is adorned with innumerable green plants, high mountains, deep-shaded woodland, and cities established by the wise creature, man; and with islands in the sea, and continents. The *inhabited world* is divided by the usual account into islands and continents, since it is not recognized that the whole of it is really one island, surrounded by the sea which is called *Atlantic*. Far away from this one, on the opposite side of the intervening seas, there are probably many other inhabited worlds,^a some greater than this, some smaller, though none is visible to us except this one; for the islands we know stand in the same relation to our seas as the whole inhabited world to the Atlantic Ocean, and many other inhabited worlds to the whole ocean; for these are great islands washed round by great seas. The whole mass of the wet element lies on the surface of the earth, allowing the so-called inhabited worlds to show through where there are projections of the earth; it is this element that would properly ^b be next in order to the air. After this, set in the depths at the centre of the cosmos, densely packed and compressed, is the whole mass of the earth, unmoved and unshaken. And this is the whole of that part of the

^b Taking *μάλιστα* with the verb; it is probably postponed for rhythmic effect. The meaning is that water is in theory next to air, but earth sometimes protrudes through the water. *σπίλους* (properly "stains" or "marks") in the previous line seems to be used in the sense of *σπλάδας* ("projections").

392 b

κόσμου τὸ πᾶν ὃ καλοῦμεν κάτω. πέντε δὲ στοι-
 393 a χεῖα ταῦτα ἐν πέντε χώραις σφαιρικῶς ἐγκείμενα,
 περιεχομένης αἰὲ τῆς ἐλάττονος τῇ μείζονι—λέγω
 δὲ γῆς μὲν ἐν ὕδατι, ὕδατος δὲ ἐν αἰθέρι, αἰέρος δὲ
 ἐν πυρί, πυρὸς δὲ ἐν αἰθέρι—τὸν ὅλον κόσμον συν-
 εστήσατο, καὶ τὸ μὲν ἄνω πᾶν θεῶν ἀπέδειξεν
 5 οἰκητήριον, τὸ κάτω δὲ ἐφημέρων ζώων. αὐτοῦ
 γε μὴν τούτου τὸ μὲν ὑγρὸν ἐστίν, ὃ καλεῖν ποτα-
 μούς καὶ νάματα καὶ θαλάσσας εἰθίσμεθα, τὸ δὲ
 ξηρόν, ὃ γῆν τε καὶ ἡπείρους καὶ νήσους ὀνομά-
 ζομεν.

Τῶν δὲ νήσων αἱ μὲν εἰσι μεγάλαι, καθάπερ ἡ
 10 σύμπασα ἥδε οἰκουμένη λέλεκται πολλαί τε ἕτεραι
 μεγάλοις περιρρεόμεναι πελάγεσιν, αἱ δὲ ἐλάττους,
 φανεραὶ τε ἡμῖν καὶ ἐντὸς οὔσαι. καὶ τούτων αἱ
 μὲν ἀξιόλογοι, Σικελία καὶ Σαρδῶ καὶ Κύρνος
 Κρήτη τε καὶ Εὐβοία καὶ Κύπρος καὶ Λέσβος, αἱ
 15 δὲ ὑποδεέστεραι, ὧν αἱ μὲν Σποράδες, αἱ δὲ Κυ-
 κλάδες, αἱ δὲ ἄλλως ὀνομάζονται.

Πέλαγος δὲ τὸ μὲν ἔξω τῆς οἰκουμένης Ἀτλαν-
 τικόν τε καὶ Ὠκεανὸς καλεῖται, περιρρέων ἡμᾶς.
 ἐν δὲ τῷ πρὸς δύσεις στενοπόρῳ διανεωγὼς¹
 στόματι, κατὰ τὰς Ἡρακλείους λεγομένας στήλας
 20 τὸν εἴσρουν εἰς τὴν ἔσω θάλασσαν ὥς ἂν εἰς λιμένα
 ποιεῖται, κατὰ μικρὸν δὲ ἐπιπλατυνόμενος ἀνα-
 χεῖται, μεγάλους περιλαμβάνων κόλπους ἀλλήλοις
 συναφεῖς, πῇ μὲν κατὰ στενοπόρους αὐχένας ἀν-
 εστομωμένος, πῇ δὲ πάλιν πλατυνόμενος. πρῶτον
 μὲν οὖν λέγεται ἐγκεκολῶσθαι ἐν δεξιᾷ εἰσπλέοντι
 25 τὰς Ἡρακλείους στήλας, διχῶς, εἰς τὰς καλου-
 μένας Σύρτεις, ὧν τὴν μὲν Μεγάλην, τὴν δὲ Μικράν,
 καλοῦσιν· ἐπὶ θάτερα δὲ οὐκέτι ὁμοίως ἀποκολπού-
 356

cosmos that we call the lower part. So these five elements, occupying five spherical regions, the larger sphere always embracing the smaller—earth in water, water in air, air in fire, fire in aether—make up the whole cosmos ; the upper part as a whole is distinguished as the abode of the gods, and the lower part as that of mortal creatures. Of the latter, some is wet, and this part we call *rivers* and *springs* and *seas* ; the rest is dry, and this part we name *land* and *continents* and *islands*.

There are various kinds of island : some are large, like this whole inhabited world of ours, as I have said, and many others which are surrounded by great oceans ; others are smaller, visible to us and within the Mediterranean. Some of these are quite considerable—Sicily, Sardinia, Corsica, Crete, Euboea, Cyprus and Lesbos ; some are smaller, like the Sporades, the Cyclades, and others with various names.

The ocean that is outside the inhabited world is called the *Atlantic*, or *Ocean*, and surrounds us. To the West of the inhabited world, this ocean makes a passage through a narrow strait called the *Pillars of Heracles*, and so makes an entry into the interior sea, as if into a harbour ; gradually it broadens and spreads out, embracing large bays joined up to each other, here contracting into narrow necks of water, there broadening out again. They say that the first of these bays that the sea forms, to starboard, if you sail in through the Pillars of Heracles, are two, called the Syrtis, of which one is called the Major, the other the Minor ; on the other side it does not form gulfs

¹ διανεωγὼς Lor. : διανεωγὸς Bekk.

393 a

μενος τρία ποιεῖ πελάγη, τό τε Σαρδόνιον καὶ τὸ
Γαλατικὸν καλούμενον καὶ Ἀδρίαν, ἐξῆς δὲ τούτων
ἐγκάρσιον τὸ Σικελικόν, μετὰ δὲ τοῦτο τὸ Κρητικόν,

30 συνεχές δὲ αὐτοῦ, τῇ μὲν τὸ Αἰγύπτιον τε καὶ
Παμφύλιον καὶ Σύριον, τῇ δὲ τὸ Αἰγαῖόν τε καὶ
Μυρτώων. ἀντιπαρῆκει δὲ τοῖς εἰρημένοις πολυ-
μερέστατος ὢν ὁ Πόντος, οὗ τὸ μὲν μυχαίτατον

393 b Μαιῶτις καλεῖται, τὸ δὲ ἔξω πρὸς τὸν Ἑλλήσ-
ποντον συνανεστόμωται τῇ καλουμένῃ Προποντίδι.

Πρὸς γε μὴν ταῖς ἀνασχέσεσι τοῦ ἡλίου πάλιν
εἰσρέων ὁ Ὠκεανός, τὸν Ἰνδικόν τε καὶ Περσικόν
διανοίξας κόλπον, ἀναφαίνει συνεχῇ τὴν Ἐρυθρὰν
5 θάλασσαν διειληφώς. ἐπὶ θάτερον δὲ κέρας κατὰ
στενόν τε καὶ ἐπιμήκη διήκων αὐχένα, πάλιν
ἀνευρύνεται, τὴν Ὑρκανίαν τε καὶ Κασπίαν ὀρίζων.
τὸ δὲ ὑπὲρ ταύτην βαθὺν ἔχει τὸν ὑπὲρ τὴν Μαιῶτιν
λίμνην τόπον. εἶτα κατ' ὀλίγον ὑπὲρ τοὺς Σκύθας
τε καὶ Κελτικὴν σφίγγει τὴν οἰκουμένην πρὸς
10 τε τὸν Γαλατικὸν κόλπον καὶ τὰς προειρημένας
Ἡρακλείους στήλας, ὧν ἔξω περιρρέει τὴν γῆν ὁ

^a The Ocean makes three separate incursions into the inhabited world—the Mediterranean, the Indian Ocean and the Caspian (see n. c below). Festugière (*op. cit.* p. 465) thinks these Eastern seas are spoken of as prolongations of the Mediterranean; but πάλιν εἰσρέων here is parallel to τὸν εἰσροῦν . . . ποιεῖται at 393 a 19.

^b Are these two gulfs or one? If two, they are respectively the Gulf of Cutch (or the Gulf of Cambay) and the Persian Gulf; if one, probably the Persian Gulf is meant. The Greek could be interpreted either way.

^c By Ἐρυθρά (red) the author probably means what was

ON THE COSMOS, 3

at first in the same way, but makes three seas, the Sardinian, Galatian and Adriatic ; next to these, and across the line of them, is the Sicilian sea ; after this, the Cretan ; and continuing this on one side are the Egyptian and Pamphylian and Syrian seas, on the other the Aegean and Myrtoan. Lying opposite these that I have described, in another direction, is the Pontus, and this has very many parts : the innermost part is called Maeotis, and the outermost part, towards the Hellespont, is joined by a strait to the sea called Propontis.

In the East, the Ocean again penetrates <the inhabited world>^a ; it opens out the gulf of India and Persia^b and without a break reveals the Red Sea,^c embracing these as parts of itself. Towards the other promontory <of Asia>,^d passing through a long narrow strait and then broadening out again, it makes the Hyrcanian or Caspian sea^e ; beyond this, it occupies a deep hollow beyond Lake Maeotis. Then little by little, beyond the land of the Scythians and Celts, it confines the inhabited world as it passes towards the Galatian Gulf and the Pillars of Heracles, already described, on the farther side of which the Ocean

generally called the Erythraean Sea, which might include our Red Sea (called the Arabian Gulf at 393 b 28).

^a Lorimer (*Notes*, p. 80, n. 3) quotes Mela i. 2 (9) to confirm this interpretation. In Mela, the two promontories are the land between the Nile and the Red Sea, and that between the Tanaïs and the Caspian.

^e Or " bounding the Hyrcanian and Caspian country " (Forster). But *θάλασσαν* is easier to understand here than *γῆν* : admittedly *ὀρίζων* has an odd sense (perhaps " marking out "), but the author is running short of synonyms for " forming " seas. At all events, he means the Caspian Sea, which was thought of as a gulf of the Northern Ocean from the time of Alexander to Ptolemy.

᾽Ωκεανός. ἐν τούτῳ γε μὴν νῆσοι μέγισται¹ τυγχάνουσιν οὖσαι δύο, Βρεττανικαὶ² λεγόμεναι, ᾽Αλβίων³ καὶ ᾽Ιέρνη, τῶν προϊστορημένων μείζους, ὑπὲρ τοὺς Κελτοὺς κείμεναι. τούτων δὲ οὐκ ἐλάττους
 15 ἢ τε Ταπροβάνη πέραν ᾽Ινδῶν, λοξή πρὸς τὴν οἰκουμένην, καὶ ἡ Φεβὸλ καλουμένη, κατὰ τὸν ᾽Αραβικὸν κειμένη κόλπον. οὐκ ὀλίγαι δὲ μικραὶ περὶ τὰς Βρεττανικὰς καὶ τὴν ᾽Ιβηρίαν κύκλῳ περιεστεφάνωνται τὴν οἰκουμένην ταύτην, ἣν δὴ νῆσον εἰρήκαμεν· ἥς πλάτος μὲν ἐστὶ κατὰ τὸ βαθύ-
 20 τατον τῆς ἡπείρου βραχὺ ἀποδέον τετρακισμυρίων σταδίων, ὥς φασιν οἱ εὖ γεωγραφήσαντες, μῆκος δὲ περὶ ἑπτακισμυρίους μάλιστα. διαιρεῖται δὲ εἰς τε Εὐρώπην καὶ ᾽Ασίαν καὶ Λιβύην.

Εὐρώπη μὲν οὖν ἐστὶν ἥς ὄροι κύκλῳ στῆλαι τε Ἑρακλέους καὶ μυχοὶ Πόντου θάλαττά τε Ὑρ-
 25 κανία, καθ' ἣν στενότατος ἰσθμὸς εἰς τὸν Πόντον διήκει· τινὲς δὲ ἀντὶ⁴ τοῦ ἰσθμοῦ Τάναϊν ποταμὸν εἰρήκασιν. ᾽Ασία δὲ ἐστὶ τὸ ἀπὸ τοῦ εἰρημένου ἰσθμοῦ τοῦ τε Πόντου καὶ τῆς Ὑρκανίας θαλάσσης μέχρι θατέρου ἰσθμοῦ, ὃς μεταξὺ κεῖται τοῦ τε ᾽Αραβικοῦ κόλπου καὶ τῆς ἑσῶ θαλάσσης, περι-

¹ post μέγισται add. τε Bekk.

² Βρεττανικαὶ Lor. : Βρεταννικαὶ Bekk.

³ ᾽Αλβίων Lor. : ᾽Αλβιον Bekk.

⁴ ἀντὶ Stob. Lor. : ἀπὸ codd. Bekk.

^a Very mysterious. It might well be Socotra, as Bochart suggests (*Arist. Erdkunde*, p. 93) ; Capelle (*op. cit.* p. 539) suggests Madagascar ; Müllenhoff (*Deutsche Altertums-kunde*, pp. 322 f.), quoted with approval by Lorimer (*Notes*, p. 37, n. 1), suggests it is the island in Lake Tana (*Psebo* in Strabo) in Abyssinia, magnified and transplanted.

flows round the earth. There are two very large islands in it, called the British Isles, Albion and Ierne ; they are larger than those already mentioned, and lie beyond the land of the Celts. No smaller than these are Taprobane (Ceylon) beyond the Indians, which lies obliquely to the inhabited world, and the island known as Phebol,^a by the Arabian Gulf. There is quite a number of other small islands round the British Isles and Spain, set in a ring round this inhabited world, which as we have said is itself an island ; its breadth, at the deepest point of the continent, is a little short of 40,000 stades, in the opinion of good geographers,^b and its length is approximately 70,000 stades. It is divided into Europe, Asia and Libya.

Europe is the area which is bounded in a circle by the Pillars of Heracles and the inner parts of the Pontus and the Hyrcanian Sea, where a very narrow ^c isthmus passes between it and the Pontus ; but some have said the river Tanaïs, instead of this isthmus.^d Asia is the region from this isthmus of the Pontus and the Hyrcanian Sea to another isthmus, which lies between the Arabian Gulf and the Mediterranean ;

^b Posidonius put the length of the οἰκουμένη at 70,000 stades, but no one reports his figure for the width ; since he thought the Ocean was quite close to Maeotis in the North, his figure would presumably be under 30,000 stades " in agreement with the view then current " (Thomson, *History of Ancient Geography*, p. 213). Eratosthenes estimated the length at 70,800 stades (with the addition of 7,000 for bulges and possible islands), and the width at 38,000.

^c Strabo reports (xi. i. 5 = 491 c) that Clitarchus and others made this isthmus absurdly narrow, while Posidonius thought it was 1500 stades.

^d These variant opinions are noted by Eratosthenes *ap.* Strabo i. 4. 7 (65 c).

393 b

30 εχόμενος ὑπό τε ταύτης καὶ τοῦ περίξ Ὠκεανοῦ·
 τινὲς δὲ¹ ἀπὸ Τανάϊδος μέχρι Νείλου στομάτων
 τὸν τῆς Ἀσίας τίθενται ὄρον. Λιβύη δὲ τὸ ἀπὸ
 τοῦ Ἀραβικοῦ ἰσθμοῦ ἕως Ἡρακλέους στηλῶν.

394 a οἱ δὲ ἀπὸ τοῦ Νείλου φασὶν ἕως ἐκείνων. τὴν δὲ
 Αἴγυπτον, ὑπὸ τῶν τοῦ Νείλου στομάτων περιρρεο-
 μένην, οἱ μὲν τῇ Ἀσίᾳ, οἱ δὲ τῇ Λιβύῃ προσ-
 άπτουσι, καὶ τὰς νήσους οἱ μὲν ἐξαιρέτους ποιοῦσιν,
 οἱ δὲ προσνέμουσι ταῖς γείτοσιν αἰεὶ μοίραις.

5 Γῆς μὲν δὴ καὶ θαλάττης φύσιν καὶ θέσιν, ἥντινα
 καλεῖν εἰώθαμεν οἰκουμένην, τοιάνδε τινὰ ἱστορή-
 καμεν.

4. Περὶ δὲ τῶν ἀξιολογωτάτων ἐν αὐτῇ καὶ περὶ
 αὐτὴν παθῶν νῦν λέγωμεν, αὐτὰ τὰ ἀναγκαῖα κεφα-
 λαιούμενοι.

Δύο γὰρ δὴ τινες ἀπ' αὐτῆς ἀναθυμιάσεις ἀνα-
 10 φέρονται συνεχῶς εἰς τὸν ὑπὲρ ἡμᾶς αἶρα, λεπτο-
 μερεῖς καὶ ἀόρατοι παντάπασιν, εἰ [τι]² μὴ κατὰ
 τὰς ἐώας ἔστιν αἶ [τε] διὰ³ ποταμῶν τε καὶ ναμά-
 των ἀναφερόμεναι θεωροῦνται. τούτων δὲ ἡ μὲν
 ἐστὶ ξηρὰ καὶ καπνώδης, ἀπὸ τῆς γῆς ἀπορρέουσα,
 ἡ δὲ νοτερὰ καὶ ἀτμώδης, ἀπὸ τῆς ὑγρᾶς ἀναθυ-
 15 μιωμένη φύσεως. γίνονται δὲ ἀπὸ μὲν ταύτης
 ὀμίχλαι καὶ δρόσοι καὶ πάγων ἰδέαι νέφη τε καὶ
 ὄμβροι καὶ χιόνες καὶ χάλαζαι, ἀπὸ δὲ τῆς ξηρᾶς
 ἄνεμοί τε καὶ πνευμάτων διαφοραὶ βρονταὶ τε καὶ
 ἀστραπαὶ καὶ πρηστῆρες καὶ κεραυνοὶ καὶ τὰ ἄλλα

¹ post δὲ add. τὸ CGZ Bekk.² τι secl. Lor.

ON THE COSMOS, 3-4

it is surrounded by the Mediterranean and the encircling stream of the Ocean ; but some say that Asia stretches from the Tanaïs to the mouths of the Nile. Libya lies between the Arabian isthmus and the Pillars of Heracles (but some say from the Nile to the Pillars). Egypt, which is encompassed by the mouths of the Nile, is attached by some to Asia, and by others to Libya, and some make the islands separate, others attribute them to their nearest region of mainland.

We have now given some account of the nature and situation of the land and sea which we call " the inhabited world."

4. Now let us turn to the most notable phenomena in and about the inhabited world, summarizing only the most essential points.

There are two exhalations ^a from it, which pass continually into the air above us, composed of small particles and entirely invisible, except that in the early mornings some can be observed rising along rivers and streams. One of these is dry and like smoke, since it emanates from the earth ; the other is damp and vaporous, since it is exhaled from the wet element. From the latter come mists, dews, the various kinds of frost, clouds, rain, snow and hail ; from the dry exhalation come the winds and various breezes, thunder and lightning, fiery bolts (*πρηστῆρες*) ^b and thunderbolts and all the other things of the same

^a For the two exhalations and their products *cf.* Aristot. *Meteor.* i. 4-12. Much of this chapter derives, ultimately, from Aristotle ; the proximate sources are discussed by Maguire (*op. cit.* pp. 128-133). ^b *Cf.* 395 a 10 and note.

³ αἱ [τε] διὰ scripsi : αἱ τε διὰ vel αἱ τε ἐκ codd. : ὅτε ἀπὸ Lor. (*De Mundo*) : αἱ [τε] ἀπὸ Lor. (*Notes*).

394 a

ἃ δὴ τούτοις ἐστὶ σύμφυλα. ἔστι δὲ ὁμίχλη μὲν
 20 ἀτμώδης ἀναθυμιάσις ἄγονος ὕδατος, ἀέρος μὲν
 παχυτέρα, νέφους δὲ ἀραιότερα· γίνεται δὲ ἥτοι ἐξ
 ἀρχῆς νέφους ἢ ἐξ ὑπολείμματος. ἀντίπαλος δὲ
 αὐτῇ λέγεται τε καὶ ἔστιν αἰθρία, οὐδὲν ἄλλο οὔσα
 πλὴν ἀήρ ἀνέφελος καὶ ἀνόμιχλος. δρόσος δὲ ἔστιν
 ὑγρὸν ἐξ αἰθρίας κατὰ σύστασιν λεπτήν φερόμενον,
 25 κρύσταλλος δὲ ἀθρόον ὕδωρ ἐξ αἰθρίας πεπηγός,
 πάχνη δὲ δρόσος πεπηγυῖα, δροσοπάχνη δὲ ἡμι-
 παγῆς δρόσος. νέφος δὲ ἔστι πάχος ἀτμῶδες
 συνεστραμμένον, γόνιμον ὕδατος· ὄμβρος δὲ γίνεται
 μὲν κατ' ἐκπиеσμὸν νέφους εὖ μάλα πεπαχυσμένου,
 διαφορὰς δὲ ἴσχει τοσάσδε ὅσας καὶ ἡ τοῦ νέφους
 30 θλίψις· ἡπία μὲν γὰρ οὔσα μαλακὰς ψακάδας δια-
 σπείρει, σφοδρὰ δὲ ἀδροτέρας· καὶ τοῦτο καλοῦμεν
 ὑετόν, ὄμβρου μείζω καὶ συνεχῇ συστρέμματα ἐπὶ
 γῆς φερόμενον.¹ χιών δὲ γίνεται κατὰ νεφῶν πε-
 πυκνωμένων ἀπόθραυσιν πρὸ τῆς εἰς ὕδωρ μετα-
 35 βολῆς ἀνακοπέντων· ἐργάζεται δὲ ἡ μὲν κοπή τὸ
 ἀφρώδες καὶ ἔκλευκον, ἡ δὲ σύμπηξις τοῦ ἐνόντος
 ὑγροῦ τὴν ψυχρότητα οὕτω χυθέντος οὐδὲ ἡραιω-
 394 b μένου. σφοδρὰ δὲ αὕτη καὶ ἀθρόα καταφερομένη
 νιφετὸς ὠνόμασται. χάλαζα δὲ γίνεται νιφετοῦ
 συστραφέντος καὶ βρῖθος ἐκ πιλήματος εἰς κατα-
 φορὰν ταχυτέραν λαβόντος· παρὰ δὲ τὰ μεγέθη τῶν
 ἀπορρηγνυμένων θραυσμάτων οἳ τε ὄγκοι μείζους
 5 αἱ τε φοραὶ γίνονται βιαιότεραι. ταῦτα μὲν οὖν
 ἐκ τῆς ὑγρᾶς ἀναθυμιάσεως πέφυκε συμπίπτειν.

Ἐκ δὲ τῆς ξηρᾶς ὑπὸ ψύχους μὲν ὠσθείσης ὥστε
 ρεῖν ἄνεμος ἐγένετο· οὐδὲν γάρ ἐστιν οὔτος πλὴν

class. Mist is a vaporous exhalation which does not produce water, denser than air but less dense than cloud ; it comes into being either from a cloud in the first stage of formation or from the remnant of a cloud. The condition contrary to this is rightly called a *clear sky*, for it is simply air, with no cloud or mist. Dew is moisture that falls out of a clear sky in a light condensation ; ice is solidified water, frozen in a clear sky : hoar-frost is frozen dew, and dew-frost is half-frozen dew. Cloud is a dense, vaporous formation, productive of water : rain comes from the compression of a well-compacted cloud, and varies in character according to the pressure on the cloud : if the pressure is light it scatters gentle drops of rain, but if it is heavy the drops are fuller : and we call this latter condition a *downpour*, for it is larger than a shower of rain and pours continuous drops of rain upon the earth. Snow occurs when well-condensed clouds break up and split before the formation of water : the split causes the foamy and brilliantly white condition of the snow, and its coldness is caused by the coagulation of the moisture contained in it, which has not had time to be either fused or rarefied. If there is a thick and heavy fall of snow, we call it a *snow-storm*. Hail occurs when a snow-storm is solidified and gathers weight because of its increased density so as to fall more rapidly ; the hailstones increase in size and their movement increases in violence according to the size of the fragments that are broken off the cloud. These then are the natural products of the wet exhalation.

From the dry exhalation, when it is forced to flow by the cold, wind is produced : for this is nothing but

¹ φερόμενον Lox. : φερόμενα Bekk.

ἂν ἢ πολλὸς ῥέων καὶ ἀθρόος· ὅστις ἅμα καὶ πνεῦμα
 10 λέγεται. λέγεται δὲ καὶ ἑτέρως πνεῦμα ἢ τε ἐν
 φυτοῖς καὶ ζώοις καὶ διὰ πάντων διήκουσα ἔμφυχός
 τε καὶ γόνιμος οὐσία, περὶ ἧς νῦν λέγειν οὐκ ἀναγ-
 καῖον. τὰ δὲ ἐν ἀέρι πνέοντα πνεύματα καλοῦμεν
 ἀνέμους, αὔρας δὲ τὰς ἐξ ὑγροῦ φερομένας ἐκπνοάς.
 τῶν δὲ ἀνέμων οἱ μὲν ἐκ νενοτισμένης γῆς πνέοντες
 15 ἀπόγειοι λέγονται, οἱ δὲ ἐκ κόλπων διεξάττοντες
 ἐγκολπῖαι· τούτοις δὲ ἀνάλογόν τι ἔχουσιν οἱ ἐκ
 ποταμῶν καὶ λιμνῶν. οἱ δὲ κατὰ ῥῆξιν νέφους
 γινόμενοι καὶ ἀνάλυσιν τοῦ πάχους πρὸς ἑαυτοὺς
 ποιούμενοι ἐκνεφῖαι καλοῦνται· μεθ' ὕδατος δὲ
 ἀθρόως ῥαγέντες¹ ἐξυδρίαι λέγονται. καὶ οἱ μὲν
 20 ἀπὸ ἀνατολῆς συνεχεῖς εὗροι κέκληνται, βορέαι δὲ
 οἱ ἀπὸ ἄρκτου, ζέφυροι δὲ οἱ ἀπὸ δύσεως, νότοι
 δὲ οἱ ἀπὸ μεσημβρίας. τῶν γε μὴν εὗρων καικίας
 μὲν λέγεται ὁ ἀπὸ τοῦ περὶ τὰς θερινὰς ἀνατολὰς
 τόπου πνέων ἄνεμος, ἀπηλιώτης δὲ ὁ ἀπὸ τοῦ περὶ
 τὰς ἰσημερινάς, εὗρος δὲ ὁ ἀπὸ τοῦ περὶ τὰς χει-
 25 μερινάς. καὶ τῶν ἐναντίων ζεφύρων ἀργέστης μὲν
 ὁ ἀπὸ τῆς θερινῆς δύσεως, ὃν τινες καλοῦσιν ὀλυμ-
 πῖαν, οἱ δὲ ἰάπυγα· ζέφυρος δὲ ὁ ἀπὸ τῆς ἰση-
 μερινῆς, λῖψ δὲ ὁ ἀπὸ τῆς χειμερινῆς. καὶ τῶν
 βορεῶν ἰδίως ὁ μὲν ἐξῆς τῷ καικία καλεῖται βορέας,
 ἀπαρκτίας δὲ ὁ ἐφεξῆς ἀπὸ τοῦ πόλου κατὰ τὸ
 30 μεσημβρινὸν πνέων, θρασκίας δὲ ὁ ἐξῆς πνέων τῷ

¹ ῥαγέντες B Lor. : ῥαγέντος codd. cet. Bekk.

^a This is a common Greek way of describing points of the compass. They divided each quarter by three; so their
366

air moving in quantity and in a mass. It is also called *breath*. In another sense "breath" means that substance found in plants and animals and pervading everything, that brings life and generation; but about that there is no need to speak now. The breath that breathes in the air we call *wind*, and the breath that comes from moisture we call *breeze*. Of the winds, some blow from the earth when it is wet and are called *land-winds*; some arise from gulfs of the sea and are called *gulf-winds*. There is a similarity between these winds and those which come from rivers and lakes. Those which arise at the breaking up of a cloud and resolve its density against themselves are called *cloud-winds*: those which burst out all at once accompanied by water are called *rain-winds*. *Eurus* is the name of the winds that blow steadily from the East, *Boreas* is the name of the North winds, *Zephyrus* of the West winds, and *Notus* of the South winds. One of the *Euri* is called *Caecias*: this is the one that blows from from the direction of the summer sunrise.^a *Apeliotes* is the one that comes from the direction of the equinoctial sunrise, and *Eurus* proper the one that comes from the direction of the winter sunrise. Of the *Zephyri*, which blow in the opposite direction, *Argestes* comes from the direction of the summer sunset; some call this *Olympias*, and some *Iapyx*. *Zephyrus* proper comes from the direction of the equinoctial sunset, *Lips* from the direction of the winter sunset. Of the winds called *Boreas*, the one properly so-called is next to *Caecias*; next to it is *Aparetias*, which blows from the North pole to the South; *Thrascias* is the one

minor points cannot be translated simply into modern terms. Equinoctial sunrise and sunset can be taken as E. and W.

394 b

ἀργέστη, ὃν ἔνιοι κερκίαν¹ καλοῦσιν. καὶ τῶν νότων ὁ μὲν ἀπὸ τοῦ ἀφανοῦς πόλου φερόμενος ἀντίπαλος τῷ ἀπαρκτία καλεῖται νότος, εὐρόνοτος δὲ ὁ μεταξὺ νότου καὶ εὐρου· τὸν δὲ ἐπὶ θάτερα μεταξὺ λιβὸς καὶ νότου οἱ μὲν λιβόνοτον, οἱ δὲ
35 λιβοφοίνικα, καλοῦσιν.

395 a

Τῶν δὲ ἀνέμων οἱ μὲν εἰσιν εὐθύπνοοι, ὅποσοι διεκπνέουσι πρόσω κατ' εὐθείαν, οἱ δὲ ἀνακαμψί-
πνοοι, καθάπερ ὁ καικίας λεγόμενος, καὶ οἱ μὲν
χειμῶνος, ὥσπερ οἱ νότοι, δυναστεύοντες, οἱ δὲ
θέρους, ὡς οἱ ἐτησῖαι λεγόμενοι, μῖξιν ἔχοντες τῶν
τε ἀπὸ τῆς ἄρκτου φερομένων καὶ ζεφύρων· οἱ δὲ
ὄρνιθῖαι καλούμενοι, ἑαρινοὶ τινες ὄντες ἄνεμοι,
5 βορέαι εἰσὶ τῷ γένει.

Τῶν γε μὴν βιαίων πνευμάτων καταιγὶς μὲν ἐστὶ πνεῦμα ἄνωθεν τύπτον ἐξαίφνης, θύελλα δὲ πνεῦμα βιαῖον καὶ ἄφνω προσαλλόμενον, λαῖλαψ δὲ καὶ στρόβιλος πνεῦμα εἰλούμενον κάτωθεν ἄνω, ἀναφύσημα δὲ γῆς πνεῦμα ἄνω φερόμενον κατὰ τὴν
10 ἐκ βυθοῦ τινος ἢ ρήγματος ἀνάδοσιν· ὅταν δὲ εἰλούμενον πολὺ φέρεται, πρηστήρ χθονίος ἐστίν. εἰληθὲν δὲ πνεῦμα ἐν νέφει παχεῖ τε καὶ νοτερῷ, καὶ ἐξωσθὲν δι' αὐτοῦ, βιαίως ρηγνύον τὰ συνεχῆ πιλήματα τοῦ νέφους, βρόμον καὶ πάταγον μέγαν ἀπειργάσατο, βροντὴν λεγόμενον, ὥσπερ ἐν ὕδατι

¹ κερκίαν Forster : καικίαν codd. Bekk.

^a Phenomena connected with wind and those connected with thunder and lightning are not clearly distinguished in Greek, and translation is difficult. Here *πρηστήρ* seems to
368

next Argestes, though some call this Circias. Of the winds called Notus, the one that comes from the invisible pole, opposite to Aparctias, is properly called Notus, and Euronotus is the one between Notus and Eurus. The one on the other side, between Notus and Lips, is sometimes called Libonotus, sometimes Libophoenix.

The current of some winds is direct—that is, they blow straight ahead; the current of others varies in direction, as in the case of Caecias. Some of them prevail in the winter, like the Noti; some prevail in the summer, like those called Etesian winds, which are a mixture of North winds and Zephyri. Those which are called Ornithian winds, which occur in the spring, belong to the class Boreas.

Of the violent types of wind, a squall is a wind that strikes suddenly from above; a gust is a violent wind that suddenly jumps up at you; a whirlwind, or cyclone, is a wind that whirls upwards in a spiral. A blast of wind from the earth is a gust caused by the expulsion of wind from some pit or chasm; when it moves with a fierce whirling motion, it is an earth-hurricane (πρηστήρ).^a When the wind whirls round in a thick cloud full of water and is pushed out through it and forcibly breaks up the closely packed material of the cloud, it makes a great din and crash, which is called *thunder*—as air does when it is passed violently

mean some kind of whirlwind, but in 394 a 18 and 395 a 24 it is a sort of thunderbolt. Aristotle says (*Meteor.* 371 a 15): “When it (*i.e.* the cloud pulled down by a descending whirlwind) is inflamed as it is pulled downwards . . . it is called a πρηστήρ; for it inflames (συνεκπίμπρησι) the neighbouring air and colours it with its fire.” The name implies a connexion with fire and perhaps here the πρηστήρ comes up from a fiery chasm (*cf.* 395 b 20).

15 πνεῦμα σφοδρῶς ἐλαυνόμενον. κατὰ δὲ τὴν τοῦ
 νέφους ἔκρηξιν πυρωθὲν τὸ πνεῦμα καὶ λάμψαν
 ἀστραπὴ λέγεται· ὁ δὲ πρότερον τῆς βροντῆς
 προσέπεσεν, ὕστερον γενόμενον, ἐπεὶ τὸ ἀκουστὸν
 ὑπὸ τοῦ ὁρατοῦ πέφυκε φθάνεσθαι, τοῦ μὲν καὶ
 πόρρωθεν ὀρωμένου, τοῦ δὲ ἐπειδὰν ἐμπελάσῃ τῇ
 20 ἀκοῇ, καὶ μάλιστα ὅταν τὸ μὲν τάχιστον ἢ τῶν
 ὄντων, λέγω δὲ τὸ πυρῶδες, τὸ δὲ ἦττον ταχύ,
 ἀερῶδες ὄν, ἐν τῇ πλήξῃ πρὸς ἀκοὴν ἀφικνούμενον.
 τὸ δὲ ἀστράψαν ἀναπυρωθὲν, βιαίως ἄχρι τῆς γῆς
 διεκθέον, κεραυνὸς καλεῖται, ἐὰν δὲ ἡμίπυρον ἦ,
 σφοδρὸν δὲ ἄλλως καὶ ἀθρόον, πρηστήρ, ἐὰν δὲ
 25 ἄπυρον παντελῶς, τυφών· ἕκαστον δὲ τούτων κατα-
 σκῆψαν εἰς τὴν γῆν σκηπτὸς ὀνομάζεται. τῶν δὲ
 κεραυνῶν οἱ μὲν αἰθαλῶδεις ψολόεντες λέγονται,
 οἱ δὲ ταχέως διάττοντες ἀργῆτες, ἐλικίαί δὲ οἱ
 γραμμοειδῶς φερόμενοι, σκηπτοὶ δὲ ὅσοι κατα-
 σκῆπτουσιν εἰς τι.

Συλλήβδην δὲ τῶν ἐν ἀέρι φαντασμάτων τὰ μὲν
 30 ἐστὶ κατ' ἔμφασιν, τὰ δὲ καθ' ὑπόστασιν—κατ'
 ἔμφασιν μὲν ἱριδες καὶ ράβδοι καὶ τὰ τοιαῦτα, καθ'
 ὑπόστασιν δὲ σέλα τε καὶ διάττοντες καὶ κομήται
 καὶ τὰ τούτοις παραπλήσια. ἶρις μὲν οὖν ἐστὶν
 ἔμφασις ἡλίου τμήματος ἢ σελήνης, ἐν νέφει νοτε-
 ρῶ καὶ κοίλῳ καὶ συνεχεῖ πρὸς φαντασίαν, ὥς ἐν
 35 κατόπτρῳ, θεωρουμένη κατὰ κύκλου περιφέρειαν.
 ράβδος δὲ ἐστὶν ἱριδος ἔμφασις εὐθεία. ἄλλως δὲ
 395 b ἐστὶν ἔμφασις λαμπρότητος ἀστρου περιάυγος·

^a See p. 368, n. a.

^b τυφών is often a typhoon or hurricane (cf. 400 a 29), but here it is connected with lightning. In mythology Typhon

through water. Because of the breaking up of the cloud the wind is set on fire, and flashes : this is called *lightning*. This lightning falls upon our senses before the thunder, though it occurs later, because what is heard is by nature slower than what is seen : for the latter is seen a great way off, the former only when it approaches the ears ; particularly when one is that swiftest thing of all, the element of Fire, while the other is less swift, since it is of the nature of air and impinges upon the hearing by physical contact. When the flashing bolt is aflame and hurtles violently to the ground it is called a *thunderbolt* ; if it is half alight, but in other respects strong and dense, it is called a *fiery bolt* ^a ; if it is altogether fireless it is called a *smoking bolt* ^b ; but each one of these when it falls upon the ground is called a *falling-bolt*. Lightning ^c is called *smoky* when it looks dark, like smoke ; *vivid*, when it moves very rapidly ; and *forked*, when it moves along jagged lines ; but when it falls on to something it is called a *falling-bolt*.

Briefly, the phenomena of the air are divided into those which are mere appearances and those which are realities : the appearances are rainbows and streaks in the sky and so on ; the realities are lights and shooting stars and comets and other such things. A rainbow is the appearance in reflection of a portion of the sun or moon, seen, like an image in a mirror, in a cloud that is wet and hollow and presents an unbroken surface, and shaped like an arc of a circle. A streak is a straight rainbow. A halo is an appearance of brightness shedding its light round a star ;

is the son of Typhos, the giant, who causes the eruption of Etna ; hence the connexion with fire.

^c κεραυνός is used for " lightning " and " thunderbolt."

διαφέρει δὲ ἱριδος ὅτι ἡ μὲν ἱρις ἐξ ἐναντίας φαίνεται ἡλίου καὶ σελήνης, ἡ δὲ ἄλως κύκλῳ παντὸς ἄστρου. σέλας δέ ἐστι πυρὸς ἀθρόου ἕξαψις ἐν αἰρί. τῶν δὲ σελάων ἃ μὲν ἀκοντίζεται, ἃ δὲ
 5 στηρίζεται. ὁ μὲν οὖν ἕξακοντισμός ἐστι πυρὸς γένεσις ἐκ παρατρίψεως ἐν αἰρί φερομένου ταχέως καὶ φαντασίαν μήκους ἐμφαίνοντος διὰ τὸ τάχος, ὁ δὲ στηριγμός ἐστι χωρὶς φορᾶς προμήκης ἔκτασις καὶ οἷον ἄστρου ῥύσις· πλατυνομένη δὲ κατὰ θάτερον κομήτης καλεῖται. πολλάκις δὲ τῶν
 10 σελάων τὰ μὲν ἐπιμένει πλείονα χρόνον, τὰ δὲ παραχρῆμα σβέννυται. πολλὰ δὲ καὶ ἄλλαι φαντασμάτων ἰδέαι θεωροῦνται, λαμπάδες τε καλούμεναι καὶ δοκίδες καὶ πίθοι καὶ βόθθυνοι, κατὰ τὴν πρὸς ταῦτα ὁμοιότητα ὧδε προσαγορευθεῖσαι. καὶ τὰ μὲν τούτων ἐσπέρια, τὰ δὲ ἑῶα, τὰ δὲ ἀμφιφαῆ
 15 θεωρεῖται, σπανίως δὲ βόρεια καὶ νότια. πάντα δὲ ἀβέβαια· οὐδέποτε γάρ τι τούτων αἰεὶ φανερόν ἱστόρηται κατεστηριγμένον. τὰ μὲν τοίνυν αἰρία τοιαῦτα.

Ἐμπεριέχει δὲ καὶ ἡ γῆ πολλὰς ἐν αὐτῇ, καθάπερ ὕδατος, οὕτως καὶ πνεύματος καὶ πυρὸς πηγὰς.
 20 τούτων δὲ αἱ μὲν ὑπὸ γῆν εἰσιν ἀόρατοι, πολλὰ δὲ ἀναπνοὰς ἔχουσι καὶ ἀναφυσήσεις, ὥσπερ Λιπάρα τε καὶ Αἴτνη καὶ τὰ ἐν Αἰόλου νήσοις· αἱ δὲ καὶ ῥέουσι πολλάκις ποταμοῦ δίκην, καὶ μύδρους ἀναρριπτοῦσι διαπύρους. ἔνιαι δὲ ὑπὸ γῆν οὔσαι πλησίον πηγαίων ὑδάτων θερμαίνουσι ταῦτα, καὶ τὰ
 25 μὲν χλιαρὰ τῶν ναμάτων ἀνιᾶσι, τὰ δὲ ὑπέρζεστα, τὰ δὲ εὖ ἔχοντα κράσεως.

it differs from a rainbow in that the rainbow appears opposite the sun or moon, but the halo is in a circle round the whole of the star. A light is the kindling of a mass of fire in the air. Some lights shoot like javelins, others are set in one position in the sky. The shooting is a generation of fire by friction in the air ; the fire moves rapidly, giving the impression of length because of its rapidity. The latter, the stationary light, is extended and lengthy but keeps the same position, as if it were an elongated star ; if it spreads out towards one end it is called a *comet*. Often there is a variation in the duration of the light, some lasting a long time, some being extinguished at once. There are also many phenomena of different kinds to be seen, called *torches* and *planks* and *jars* and *pits*, taking their names from their likeness to these objects. Some of these can be seen in the West and some in the East, and some in both ; they rarely appear in the North and South. All of them are unstable ; for none of them has ever been described as always visible in the same place. So much, then, for the things of the air.

The earth contains in itself many sources, not only of water, but also of wind and fire. Some of these are subterranean and invisible, but many have vents and blow-holes, like Lipara and Etna and the volcanoes in the Aeolian islands. These often flow like rivers and throw up fiery, red-hot lumps. Some of the subterranean sources, which are near springs of water, impart heat to these : some of the streams they make merely lukewarm, some boiling, and some moderately and pleasantly hot.

¹ αἱ δὴ codd. Lor. : αἱ δὲ Bekk.

Ὅμοίως δὲ καὶ τῶν πνευμάτων πολλὰ πολλαχοῦ
 γῆς στόμια ἀνέωκται· ὧν τὰ μὲν ἐνθουσιᾶν ποιεῖ
 τοὺς ἐμπελάζοντας, τὰ δὲ ἀτροφεῖν, τὰ δὲ χρη-
 σμωδεῖν, ὥσπερ τὰ ἐν Δελφοῖς καὶ Λεβαδεΐᾳ, τὰ
 30 δὲ καὶ παντάπασιν ἀναιρεῖ, καθάπερ τὸ ἐν Φρυ-
 γίᾳ. πολλάκις δὲ καὶ συγγενὲς πνεῦμα εὐκρατον
 ἐν γῇ παρεξωσθὲν εἰς μυχίους σήραγγας αὐτῆς,
 ἔξεδρον γενόμενον ἐκ τῶν οἰκείων τόπων, πολλὰ
 μέρη συνεκράδανεν. πολλάκις δὲ πολὺ γενόμενον
 ἔξωθεν ἐγκατεिलήθη τοῖς ταύτης κοιλώμασι καὶ
 35 ἀποκλεισθὲν ἐξόδου μετὰ βίας αὐτὴν συνετίναξε,
 ζητοῦν ἐξοδὸν ἑαυτῷ, καὶ ἀπειργάσατο πάθος
 396 a τοῦτο ὃ καλεῖν εἰώθαμεν σεισμόν. τῶν δὲ σεισμῶν
 οἱ μὲν εἰς πλάγια σείοντες κατ' ὀξείας γωνίας ἐπι-
 κλίνονται καλοῦνται, οἱ δὲ ἄνω ῥιπτοῦντες καὶ κάτω
 κατ' ὀρθὰς γωνίας βράσται, οἱ δὲ συνιζήσεις ποι-
 οῦντες εἰς τὰ κοῖλα ἰζηματία¹. οἱ δὲ χάσματα ἀνοί-
 5 γοντες καὶ τὴν γῆν ἀναρρηγνύντες ῥῆκται καλοῦνται.
 τούτων δὲ οἱ μὲν καὶ πνεῦμα προσαναβάλλουσιν,
 οἱ δὲ πέτρας, οἱ δὲ πηλόν, οἱ δὲ πηγὰς φαίνουσι τὰς
 πρότερον οὐκ οὔσας. τινὲς δὲ ἀνατρέπουσι² κατὰ
 μίαν πρόωσιν, οὓς καλοῦσιν ὥστας. οἱ δὲ ἀνταπο-
 πάλλοντες³ καὶ ταῖς εἰς ἑκάτερον ἐγκλίσεσι καὶ
 10 ἀποπάλλεσι διορθοῦντες αἰεὶ τὸ σειόμενον παλματία
 λέγονται, τρόμῳ πάθος ὅμοιον ἀπεργαζόμενοι. γί-
 νονται δὲ καὶ μυκηταὶ σειμοί, σείοντες τὴν γῆν
 μετὰ βρόμου. πολλάκις δὲ καὶ χωρὶς σεισμοῦ
 γίνεται μύκημα γῆς, ὅταν τὸ πνεῦμα σείειν μὲν μὴ
 αὐτάρκες ᾖ, ἐνείλουμένον δὲ ἐν αὐτῇ κόπτηται μετὰ

¹ ἰζηματία Z. Lor. (cf. Johann. Lyd. *De Ost.* 54) : χωματία Stob. : χασματία codd. cet. Bekk.

Similarly, too, there are in many places on the earth's surface open vents for the winds, which have various effects on those who approach them, causing ecstatic inspiration, or wasting sickness, or in some cases prophecy, like those at Delphi and Lebadeia, or even complete destruction, like the one in Phrygia. Often, too, a moderate earth-born wind, forced into deep, hollow caves in the earth and becoming dislodged from its home, causes shocks in many places. Often when a large quantity from outside is confined within the hollows of the earth and cut off from exit, it shakes the earth violently, seeking an exit for itself, and produces the effect that we call an *earthquake*. Earthquakes which shake the earth obliquely at a very acute angle we call *horizontal*; those which blast upwards and downwards perpendicularly are called *heaving* earthquakes; those which cause a settlement of the earth into hollows are called *sinking* earthquakes; and those which open up chasms and split the earth are called *splitting* earthquakes. Some of them stir up a wind, or rocks, or mud; and some reveal springs that were not there before. Some, called *thrusting* earthquakes, overturn things with a single heave. Others cause recoil this way and that, and in the process of lurching to one side and rebounding again the things that are shaken are held upright: these are called *oscillating* earthquakes, and their effect is a sort of trembling. There are also *roaring* earthquakes, which shake the earth with a great din. There is often, also, a roaring of the earth without an earthquake, when the wind is not sufficient to shake the earth but lashes about enveloped in the

² ἀνατρέπουσι Lor. : ἀνατρέποντες Bekk.

³ ἀναποπάλλοντες Lor. : ἀναπάλλοντες Bekk.

396 a

15 ῥοθίου βίας. συσσωματοποιεῖται δὲ τὰ εἰσιόντα πνεύματα καὶ ὑπὸ τῶν ἐν τῇ γῇ ὑγρῶν κεκρυμμένων.

Τὰ δὲ ἀνάλογον συμπίπτει τούτοις καὶ ἐν θαλάσσῃ· χάσματά τε γὰρ γίνεται θαλάσσης καὶ ἀναχωρήματα πολλάκις καὶ κυμάτων ἐπιδρομαί, ποτὲ
20 μὲν ἀντανακοπὴν ἔχουσαι, ποτὲ δὲ πρόωσιν μόνον, ὥσπερ ἱστορεῖται περὶ Ἑλίκην τε καὶ Βοῦραν. πολλάκις δὲ καὶ ἀναφυσήματα γίνεται πυρὸς ἐν τῇ θαλάσσῃ καὶ πηγῶν ἀναβλύσεις καὶ ποταμῶν ἐκβολαὶ καὶ δένδρων ἐκφύσεις ῥοαί τε καὶ δῖναι ταῖς τῶν πνευμάτων ἀνάλογον, αἱ μὲν ἐν μέσοις πε-
25 λάγεσιν, αἱ δὲ κατὰ τοὺς εὐρίπους τε καὶ πορθμούς. πολλαί τε ἀμπώτεις λέγονται καὶ κυμάτων ἄρσεις συμπεριοδεῖν αἰὲ τῇ σελήνῃ κατὰ τινὰς ὠρισμένους καιροὺς.

Ὡς δὲ τὸ πᾶν εἰπεῖν, τῶν στοιχείων ἐγκεκραμένων ἀλλήλοις ἐν ἀέρι τε καὶ γῇ καὶ θαλάσῃ
30 κατὰ τὸ εἰκὸς αἱ τῶν παθῶν ὁμοιότητες συνίστανται, τοῖς μὲν ἐπὶ μέρους φθορὰς καὶ γενέσεις φέρουσαι, τὸ δὲ σύμπαν ἀνώλεθρόν τε καὶ ἀγένητον φυλάττουσαι.

5. Καίτοι γέ τις ἐθαύμασε πῶς ποτε, εἰ ἐκ τῶν ἐναντίων ἀρχῶν συνέστηκεν ὁ κόσμος, λέγω δὲ
35 ξηρῶν τε καὶ ὑγρῶν, ψυχρῶν τε καὶ θερμῶν, οὐ
396 b πάλαι διέφθαρται καὶ ἀπόλωλεν, ὥς καὶ εἰ πόλιν τινὲς θαυμάζοιεν, ὅπως διαμένει συνεστηκυῖα ἐκ τῶν ἐναντιωτάτων¹ ἔθνων, πενήτων λέγω καὶ πλουσίων, νέων γερόντων, ἀσθενῶν ἰσχυρῶν, πονηρῶν χρηστῶν. ἀγνοοῦσι δὲ ὅτι τοῦτ' ἦν πολιτι-

¹ ἐναντιωτάτων codd. pler. Lox. : ἐναντίων codd. cct. Bekk.

ON THE COSMOS, 4-5

earth with tumultuous force. The blasts of wind that enter the earth are recondensed also by the moisture that is hidden in the earth.^a

There are also analogous happenings in the sea : chasms occur in the sea, and its waves often withdraw ; and there are incursions of waves, sometimes with a recoil, sometimes with a forward rush only, as they say was the case at Helice and Bura.^b Often too there are exhalations of fire in the sea and eruptions of fountains, and rivers are shot forth, and trees grow, and there are currents and vortices like those of the winds, some in the middle of the oceans, some in the narrows and straits. There are many tides and tidal waves too, which are said to occur in concert with the moon at certain definite times.

To sum up, since the elements are mingled one with another, it is natural that phenomena in the air and land and sea should show these similarities, which involve destruction and generation for the individual parts of nature, but preserve the whole free from corruption and generation.

5. Some people, however, have wondered how the cosmos, if it is composed of the " opposite " principles (I mean dry and wet, cold and hot), has not long ago been destroyed and perished ; it is as if men should wonder how a city survives, composed as it is of the most opposite classes (I mean poor and rich, young and old, weak and strong, bad and good). They do not recognize that the most wonderful thing of all about

^a *i.e.*, wind entering the earth may (a) cause an earthquake, (b) cause a roar only, or (c) be recondensed and so cause neither.

^b Cf. Strabo viii. 7. 2 (384 c), i. 3. 10 (54 c), Aristot. *Meteor.* 343 b 1, etc., on the destruction of these two cities in Achaia. The date was 373/2 B.C.

5 κῆς ὁμοιοῖας τὸ θαυμασιώτατον, λέγω δὲ τὸ¹ ἐκ
 πολλῶν μίαν καὶ ὁμοίαν ἐξ ἀνομοίων ἀποτελεῖν¹
 διάθεσιν, ὑποδεχομένην² πᾶσαν καὶ φύσιν καὶ τύχην.
 ἴσως δὲ καὶ τῶν ἐναντίων ἢ φύσις γλίσχεται καὶ ἐκ
 τούτων ἀποτελεῖ τὸ σύμφωνον, οὐκ ἐκ τῶν ὁμοίων,
 ὥσπερ ἀμέλει τὸ ἄρρεν συνήγαγε πρὸς τὸ θῆλυ καὶ
 10 οὐχ ἐκάτερον πρὸς τὸ ὁμόφυλον, καὶ τὴν πρώτην
 ὁμόνοιαν διὰ τῶν ἐναντίων σημήψεν, οὐ διὰ τῶν
 ὁμοίων. ἔοικε δὲ καὶ ἡ τέχνη τὴν φύσιν μιμουμένη
 τοῦτο ποιεῖν. ζωγραφία μὲν γὰρ λευκῶν τε καὶ
 μελάνων, ὠχρῶν τε καὶ ἐρυθρῶν, χρωμάτων ἐγ-
 κερασαμένη φύσεις τὰς εἰκόνας τοῖς προηγου-
 15 μένοις ἀπετέλεσε συμφώνους, μουσικὴ δὲ ὀξεῖς
 ᾄμα καὶ βαρεῖς, μακροὺς τε καὶ βραχεῖς φθόγγους
 μίξασα ἐν διαφόροις φωναῖς μίαν ἀπετέλεσεν ἁρμο-
 νίαν, γραμματικὴ δὲ ἐκ φωνηέντων καὶ ἀφώνων
 γραμμάτων κρᾶσιν ποιησαμένη τὴν ὅλην τέχνην
 ἀπ' αὐτῶν συνεστήσατο. ταῦτ' οὖν δὲ τοῦτο ἦν καὶ
 20 τὸ παρὰ τῷ σκοτεινῷ λεγόμενον Ἑρακλείτῳ·
 “συνάψεις ὅλα καὶ οὐχ ὅλα, συμφερόμενον διαφερό-
 μενον, συνᾶδον διᾶδον· καὶ ἐκ πάντων ἐν καὶ ἐξ
 ἑνὸς πάντα.”³ οὕτως οὖν καὶ τὴν τῶν ὅλων σύ-
 στασιν, οὐρανοῦ λέγω καὶ γῆς τοῦ τε σύμπαντος
 25 κόσμου, διὰ τῆς τῶν ἐναντιωτάτων κρᾶσεως ἀρχῶν

¹ τὸ . . . ἀποτελεῖν I.or. : ὅτι . . . ἀποτελεῖ Bekk.

² ὑποδεχομένην I.or. : ὑποδεχομένη Bekk.

³ sic Diels (*Vorsokr.*⁶ 22 B 10) : v. I.or. ad loc.

^a The idea that art imitates nature occurs in Aristotle's *Protrepticus* (see Jaeger, *Aristotle*, pp. 74 f.), and in *Phys.* B 199 a 15, *Meteor.* 381 b 5, *De Part. Anim.* 639 b 15 ff. But in Aristotle the point of comparison concerns teleology, not 378

the harmonious working of a city-community is this : that out of plurality and diversity it achieves a homogeneous unity capable of admitting every variation of nature and degree. But perhaps nature actually has a liking for opposites ; perhaps it is from them that she creates harmony, and not from similar things, in just the same way as she has joined the male to the female, and not each of them to another of the same sex, thus making the first harmonious community not of similar but of opposite things. It seems, too, that art does this, in imitation of nature ^a : for painting mixes its whites and blacks, its yellows and reds, to create images that are concordant with their originals ; music mixes high and low notes, and longs and shorts, and makes a single tune of different sounds ; by making a mixture of vowels and consonants, grammar composes out of them the whole of its art. This is precisely what Heracleitus the Dark ^b meant when he said " Junctions are wholes and not-wholes, concord and discord, consonance and dissonance. One out of All ; All out of One." So in the same way the complex of the Universe, I mean heaven and earth and the whole cosmos, by means of the mixture of the most opposite elements has been

the harmony of opposites. The four colours mentioned by Pseudo-Aristotle are the colours of the restricted palette used by the Four Colour Painters, of whom the earliest recorded is Polygnotus and the latest Aëtion in the age of Alexander the Great. Cf. Pliny, *N.H.* xxxv. 50, and A. Rumpf, *JHS* lxxvii (1947), p. 16. It has been suggested that Empedocles' comparison of painting and creation (Diels, *Vorsokr.*⁶ 31 B 23) was inspired by Four Colour Painting.

^b It is not likely that the author read Heracleitus in the original, or that the whole context is to be attached too closely to Heracleitus. Maguire (*op. cit.* pp. 134 ff.) finds the closest parallels to this passage in the Neo-Pythagoreans.

396 b

μία διεκόσμησεν ἄρμονία· ξηρὸν γὰρ ὑγρῷ, θερμὸν
 δὲ ψυχρῷ, βαρεῖ τε κοῦφον μιγέν, καὶ ὀρθὸν περι-
 φερεῖ, γῆν τε πᾶσαν καὶ θάλασσαν αἰθέρα τε καὶ
 ἥλιον καὶ σελήνην καὶ τὸν ὅλον οὐρανὸν διεκόσμησε
 μία ἢ διὰ πάντων διήκουσα δύναμις, ἐκ τῶν ἀμίκ-
 30 των καὶ ἑτεροίων, ἀέρος τε καὶ γῆς καὶ πυρὸς καὶ
 ὕδατος, τὸν σύμπαντα κόσμον δημιουργήσασα καὶ
 μιᾷ διαλαβοῦσα σφαίρας ἐπιφανείᾳ τὰς τε ἐναντιω-
 τάτας ἐν αὐτῷ φύσεις ἀλλήλαις ἀναγκάσασα ὁμο-
 λογῆσαι καὶ ἐκ τούτων μηχανησαμένη τῷ παντὶ
 σωτηρίαν. αἰτία δὲ ταύτης μὲν ἢ τῶν στοιχείων
 35 ὁμολογία, τῆς δὲ ὁμολογίας ἢ ἰσομοιρία καὶ τὸ
 397 a μῆδὲν αὐτῶν πλεόν ἕτερον ἑτέρου δύνασθαι· τὴν
 γὰρ ἴσην ἀντίστασιν ἔχει τὰ βαρέα πρὸς τὰ κοῦφα
 καὶ τὰ θερμὰ πρὸς θάτερα,¹ τῆς φύσεως ἐπὶ τῶν
 μειζόνων διδασκούσης ὅτι τὸ ἴσον σωστικόν πῶς
 ἐστὶν ὁμονοίας, ἢ δὲ ὁμόνοια τοῦ πάντων γενετήρος
 5 καὶ περικαλλεστάτου κόσμου. τίς γὰρ ἂν εἴη φύσις
 τοῦδε κρείττων; ἦν γὰρ ἂν εἴπη² τις, μέρος ἐστὶν
 αὐτοῦ. τό τε καλὸν πᾶν ἐπώνυμόν ἐστι τούτου καὶ
 τὸ τεταγμένον, ἀπὸ τοῦ κόσμου λεγόμενον κεκο-
 σμηῆσθαι. τί³ δὲ τῶν ἐπὶ μέρους δύναιτ' ἂν ἐξισω-
 θῆναι τῇ κατ' οὐρανὸν τάξει τε καὶ φορᾷ τῶν
 10 ἄστρον ἡλίου τε καὶ σελήνης, κινουμένων ἐν ἀκρι-
 βεστάτοις μέτροις ἐξ αἰῶνος εἰς ἕτερον αἰῶνα; τίς
 δὲ γένοιτ' ἂν ἀψεύδεια τοιάδε, ἥντινα φυλάττουσιν
 αἱ καλαὶ καὶ γόνιμοι τῶν ὄλων ὥραι, θέρη τε καὶ
 χειμῶνας ἐπάγουσαι τεταγμένως ἡμέρας τε καὶ

¹ θάτερα ETZ Lor. : τὰ θάτερα codd. cet. Bekk.

organized by a single harmony : dry mixed with wet, hot with cold, light with heavy, straight with curved—the whole of earth and sea, the aether, the sun, the moon and the whole heaven have been set in order by the single power which interpenetrates all things : from things unmixed and diverse, air and earth and fire and water, it has fashioned the whole cosmos and embraced it all in the surface of a single sphere, forcing the most opposite elements in the cosmos to come to terms, and from them achieving preservation for the whole. The cause of its preservation is the agreement of the elements, and the cause of the agreement is the principle of equal shares and the fact that no one of them has more power than each of the others : for the heavy is in equipoise with the light, and the hot with its opposite. In these greater matters nature teaches us that equality is the preserver of concord, and concord is the preserver of the cosmos, which is the parent of all things and the most beautiful of all. For what being could be better than this ? Anything that might be suggested is a part of it. And everything that is beautiful takes its name from this, and all that is well-arranged ; for it is called “ well-ordered ” (κεκοσμησθαι) after this “ universal order ” (κόσμος). What particular detail could be compared to the arrangement of the heavens and the movement of the stars and the sun and moon, moving as they do from one age to another in the most accurate measures of time ? What constancy could rival that maintained by the hours and seasons, the beautiful creators of all things, that bring summers and winters in due order, and days and nights to make

² εἴπη EP Lor. : εἴποι codd. cet. Bekk.

³ τί Lor. : τίς Bekk.

397 a

νύκτας εἰς μηνὸς ἀποτέλεσμα καὶ ἐνιαυτοῦ; καὶ
 15 μὴν μεγέθει μὲν οὗτος¹ πανυπέρτατος, κινήσει δὲ
 ὀξύτατος, λαμπρότητι δὲ εὐαυγέστατος, δυνάμει δὲ
 ἀγήρως τε καὶ ἄφθαρτος. οὗτος ἐναλίω· ζώων
 καὶ πεζῶν καὶ ἀερίων φύσεις ἐχώρισε καὶ βίους
 ἐμέτρησε ταῖς ἑαυτοῦ κινήσεσιν. ἐκ τούτου πάντα
 ἐμπνέει τε καὶ ψυχὴν ἴσχει τὰ ζῶα. τούτου καὶ αἱ
 20 παράδοξοι νεοχμώσεις τεταγμένως ἀποτελοῦνται,
 συναραττόντων μὲν ἀνέμων παντοίων, πιπτόντων
 δὲ ἐξ οὐρανοῦ κεραυνῶν, ῥηγνυμένων δὲ χειμώνων
 ἐξαισιῶν. διὰ δὲ τούτων τὸ νοτερόν ἐκπιεζόμενον
 τό τε πυρῶδες διαπνεόμενον εἰς ὁμόνοιαν ἄγει τὸ
 πᾶν καὶ καθίστησιν. ἢ τε γῇ φυτοῖς κομῶσα παντο-
 25 δαποῖς νάμασί τε περιβλύζουσα καὶ περιοχουμένη
 ζώοις, κατὰ καιρὸν ἐκφύουσά τε πάντα καὶ τρέ-
 φουσα καὶ δεχομένη, μυρίας τε φέρουσα ἰδέας καὶ
 πάθη, τὴν ἀγήρῳ φύσιν ὁμοίως τηρεῖ, καίτοι καὶ
 σεισμοῖς τινασσομένη καὶ πλημυρίσιν ἐπικλυζομένη
 30 πυρκαϊαῖς τε κατὰ μέρος φλογιζομένη. ταῦτα δὲ
 πάντα ἔοικεν αὐτῇ πρὸς ἀγαθοῦ γινόμενα τὴν δι'
 αἰῶνος σωτηρίαν παρέχειν· σειομένης τε γὰρ δι-
 εξάπτουσιν αἱ τῶν πνευμάτων παρεμπτώσεις κατὰ
 τὰ ῥήγματα τὰς ἀναπνοὰς ἴσχουσιν, καθὼς ἄνω
 λέλεκται, καθαιρομένη τε ὄμβροις ἀποκλύζεται
 35 πάντα τὰ νοσώδη, περιπνεομένη δὲ αὖραις τὰ τε
 ὑπ' αὐτὴν καὶ τὰ ὑπὲρ αὐτὴν εἰλικρινεῖται. καὶ
 397 b μὴν αἱ φλόγες μὲν τὸ παγετῶδες ἡπιαίνουσιν,² οἱ
 πάγοι δὲ τὰς φλόγας ἀνιᾶσιν. καὶ τῶν ἐπὶ μέρους
 τὰ μὲν γίνεται, τὰ δὲ ἀκμάζει, τὰ δὲ φθείρεται.

¹ οὗτος Lor. : ὁ αὐτὸς Bekk.² ἡπιαίνουσι(ν) BCFG Lor. : πιαίνουσιν codd. cet. Bekk.

up the number of a month or a year ? In size too the cosmos is mightiest, in motion swiftest, in brightness most brilliant, in power never-aging and indestructible. It is this that has given a different nature to the creatures of the sea, the land and the air, and measured their lives in terms of its own movements. From this all creatures breathe and take their life. Of this even the unexpected changes are accomplished in due order—the winds of all kinds that dash together, thunderbolts falling from the heavens, and storms that violently burst out. Through these the moisture is squeezed out and the fire is dispersed by currents of air ; in this way the whole is brought into harmony and so established. The earth, too, that is crowned with plants of every kind and bubbles with springs and teems with living creatures everywhere, that brings forth everything in season and nurtures it and receives it back again, that produces a myriad shapes and conditions—this earth still keeps its never-aging nature unchanged, though it is racked by earthquakes, swamped by floods, and burnt in part by fires. All these things, it seems, happen for the good of the earth and give it preservation from age to age : for when it is shaken by an earthquake, there is an upsurge of the winds transfused within it, which find vent-holes through the chasms, as I have already said ^a ; when it is washed by rain it is cleansed of all noxious things ; and when the breezes blow round about it the things below and above it are purified. Furthermore the fires soften things that are frozen, and frost abates the force of the fires. And of the particular things on the earth some come into being while some are in their prime and others are perishing :

^a 395 b 26.

καὶ αἱ μὲν γενέσεις ἐπαναστέλλουσι τὰς φθοράς,
 5 αἱ δὲ φθοραὶ κουφίζουσι τὰς γενέσεις. μία δὲ ἐκ
 πάντων περαινομένη σωτηρία διὰ τέλους ἀντιπερι-
 ισταμένων ἀλλήλοις καὶ τοτὲ μὲν κρατούντων, τοτὲ
 δὲ κρατουμένων, φυλάττει τὸ σύμπαν ἄφθαρτον δι'
 αἰῶνος.

6. Λοιπὸν δὲ δὴ περὶ τῆς τῶν ὅλων συνεκτικῆς
 10 αἰτίας κεφαλαιωδῶς εἰπεῖν, ὃν τρόπον καὶ περὶ τῶν
 ἄλλων· πλημμελὲς γὰρ περὶ κόσμου λέγοντας, εἰ
 καὶ μὴ δι' ἀκριβείας, ἀλλ' οὖν γε ὥς εἰς τυπώδη
 μάθησιν, τὸ τοῦ κόσμου κυριώτατον παραλιπεῖν.
 ἀρχαῖος μὲν οὖν τις λόγος καὶ πάτριός ἐστι πᾶσιν
 ἀνθρώποις ὥς ἐκ θεοῦ πάντα καὶ διὰ θεοῦ ἡμῖν
 15 συνέστηκεν, οὐδεμία δὲ φύσις αὐτὴ καθ' ἑαυτὴν
 ἐστὶν αὐτάρκης, ἐρημωθείσα τῆς ἐκ τούτου σω-
 τηρίας. διὸ καὶ τῶν παλαιῶν εἰπεῖν τινες προήχθη-
 σαν ὅτι πάντα ταῦτά ἐστι θεῶν πλέα τὰ καὶ δι'
 ὀφθαλμῶν ἰνδαλλόμενα ἡμῖν καὶ δι' ἀκοῆς καὶ
 πάσης αἰσθήσεως, τῇ μὲν θείᾳ δυνάμει πρέποντα
 20 καταβαλλόμενοι λόγον, οὐ μὴν τῇ γε οὐσίᾳ. σωτὴρ
 μὲν γὰρ ὄντως ἀπάντων ἐστὶ καὶ γενέτωρ τῶν
 ὁπωσδήποτε κατὰ τόνδε τὸν κόσμον συντελου-
 μένων ὁ θεός, οὐ μὴν αὐτουργοῦ καὶ ἐπιπόνου
 ζώου κάματος ὑπομένων, ἀλλὰ δυνάμει χρώμενος
 ἀτρύτῳ, δι' ἧς καὶ τῶν πόρρω δοκούντων εἶναι
 25 περιγίνεται. τὴν μὲν οὖν ἀνωτάτῳ καὶ πρώτῳ
 ἔδραν αὐτὸς ἔλαχεν, ὕπατός τε διὰ τοῦτο ὠνό-
 μασται, [καὶ]¹ κατὰ τὸν ποιητὴν “ ἀκροτάτῃ κο-

¹ καὶ om. BCG Lör.

and generation is set in the balance against destruction, and destruction lightens the weight of generation. There is one single principle of preservation, maintained without interruption among all these things that interchange with one another, ascending to power and declining in turn, and this keeps the whole system safe, eternally indestructible.

6. It remains now to discuss summarily, as the rest has been discussed, the cause that holds the world together; for in describing the cosmos, if not in detail, at least sufficiently to convey an outline, it would be wrong for us to omit altogether that which is supreme in the cosmos. It is indeed an ancient idea, traditional among all mankind, that all things are from God and are constituted for us by God, and nothing is self-sufficient if deprived of his preserving influence. So some of the ancients were led to say that all the things of this world are full of gods,^a all that are presented to us through our eyes and hearing and all the senses; but in saying this they used terms suitable to the power of God but not to his essence. For God is indeed the preserver of all things and the creator of everything in this cosmos however it is brought to fruition; but he does not take upon himself the toil of a creature that works and labours for itself,^b but uses an indefatigable power, by means of which he controls even things that seem a great way off. God has his home in the highest and first place, and is called Supreme for this reason, since according to the poet ^c it is on "the loftiest crest"

^a Cf. the saying attributed to Thales (Diels, *Vorsokr.* 11 A 22 = Aristot. *De Anima* 411 a 7).

^b The *αὐτορροπός* (cf. 398 a 5, b 4) is the man who works his own land without a slave, e.g. Electra's husband in Euripides' *Electra*.

^c Hom. *Il.* i. 499.

ρυφῇ'' τοῦ σύμπαντος ἐγκαθιδρυμένος οὐρανοῦ·
 μάλιστα δέ πως αὐτοῦ τῆς δυνάμεως ἀπολαύει τὸ
 πλησίον αὐτοῦ σῶμα, καὶ ἔπειτα τὸ μετ' ἐκείνο,
 30 καὶ ἐφεξῆς οὕτως ἄχρι τῶν καθ' ἡμᾶς τόπων. διὸ
 γῇ τε καὶ τὰ ἐπὶ γῆς ἔοικεν, ἐν ἀποστάσει πλείστη
 τῆς ἐκ θεοῦ ὄντα ὠφελείας, ἀσθενῇ καὶ ἀκατάλληλα
 εἶναι καὶ πολλῆς μεστὰ ταραχῆς· οὐ μὴν ἀλλὰ
 [καὶ]¹ καθ' ὅσον ἐπὶ πᾶν δικνέισθαι πέφυκε τὸ
 θεῖον, καὶ τὰ καθ' ἡμᾶς ὁμοίως συμβαίνει τά τε
 35 ὑπὲρ ἡμᾶς, κατὰ τὸ ἔγγιον τε καὶ πορρωτέρω θεοῦ
 398 a εἶναι μᾶλλον τε καὶ ἥττον ὠφελείας μεταλαμβάν-
 οντα. κρεῖττον οὖν ὑπολαβεῖν, ὃ καὶ πρέπον ἐστὶ
 καὶ θεῷ μάλιστα ἀρμόζον, ὡς ἡ ἐν οὐρανῷ δύναμις
 ἰδρυμένη καὶ τοῖς πλείστον ἀφεστηκόσιν, ὡς ἐνι
 γε εἰπεῖν, καὶ σύμπασιν αἰτία γίνεται σωτηρίας,
 5 μᾶλλον ἢ ὡς διήκουσα καὶ φοιτῶσα ἔνθα μὴ καλὸν
 μηδὲ εὐσχημον αὐτουργεῖ τὰ ἐπὶ γῆς. τοῦτο μὲν
 γὰρ οὐδὲ ἀνθρώπων ἡγεμόσιν ἀρμόττει, παντὶ καὶ
 τῷ τυχόντι ἐφίστασθαι ἔργῳ, οἷον στρατιᾶς ἄρχοντι
 ἢ πόλεως ἢ οἴκου, [καὶ]² εἰ χρεὼν στρωματό-
 δεσμον εἶη δῆσαι καὶ εἴ τι φανυλότερον ἀποτελεῖν
 10 ἔργον, ὃ³ καὶ τὸ τυχὸν ἀνδράποδον ποιήσειεν, ἀλλ'
 οἷον ἐπὶ τοῦ μεγάλου βασιλέως ἱστορεῖται. τὸ
 <γὰρ> Καμβύσου³ Ξέρξου τε καὶ Δαρείου πρό-

¹ καὶ om. CGZ Lor.

² καὶ del. Wendland et Wilamowitz.

³ ὁ . . . Καμβύσου sic Lor. : ὁ ἐπὶ τοῦ μεγάλου βασιλέως οὐκ
 ἂν τὸ τυχὸν ἀνδράποδον ποιήσειεν· ἀλλ' οἷον ἱστορεῖτο Καμβύσου
 κτλ. Bekk. : v. Lor. ad loc.

ON THE COSMOS, 6

of the whole heaven that he dwells : his power is experienced most of all by the body that is closest to him, less by the next, and so on down to the regions inhabited by us. So earth and the things that are on earth, being at the farthest remove from the help of God, seem to be feeble and discordant and full of confusion and diversity ; but nevertheless, in that it is the nature of the Divine to penetrate to everything, even the things around us occur in the same way as the things above us, each having a greater or smaller share of God's help in proportion to its distance from him. So it is better to suppose, what is also fitting and most appropriate to God, that the power which is based on the heavens is also the cause of preservation in the most remote things, as we may say, and indeed in everything, rather than that of itself it carries out its tasks on earth by penetrating and being present where it is not honourable or fitting that it should.^a For it is not fitting even among men for princes to superintend each and every action that may have to be done—for example, the commander of an army or leader of a city or head of a household, if it were necessary to pack up bedding or perform some other menial task which could be done by any slave—but rather it is fitting that they should act in the manner which was adopted, according to the records, under the Great King.^b The pomp of Cambyses and Xerxes and Darius was ordered on a

^a The " power " has here become identified with god ; this is literally inconsistent with 397 b 19 above.

^b Pseudo-Aristotle describes the King of Persia in his glory in the 6th/5th century B.C. He accords well with Herodotus's (i. 98) account of Deïoces' palace and régime at Ecbatana. This is a description of a fabulous past such as Aristotle would hardly have given.

σχημα εἰς σεμνότητος καὶ ὑπεροχῆς ὕψος μεγα-
 λοπρεπῶς διεκεκόσμητο· αὐτὸς μὲν γάρ, ὡς λόγος,
 ἴδρυτο ἐν Σούσοις ἢ Ἐκβατάνοις, παντὶ ἀόρατος,
 15 θαυμαστὸν ἐπέχων βασιλείον οἶκον καὶ περίβολον
 χρυσῷ καὶ ἡλέκτρῳ καὶ ἐλέφαντι ἀστράπτοντα·
 πυλῶνες δὲ πολλοὶ καὶ συνεχεῖς πρόθυρά τε σύχνοις
 εἰργόμενα σταδίοις ἀπ' ἀλλήλων θύραις τε χαλκαῖς
 καὶ τείχεσι μεγάλοις ὠχύρωτο· ἔξω δὲ τούτων
 ἄνδρες οἱ πρῶτοι καὶ δοκιμώτατοι διεκεκόσμηντο,
 20 οἱ μὲν ἀμφ' αὐτὸν τὸν βασιλέα δορυφόροι τε καὶ
 θεράποντες, οἱ δὲ ἐκάστου περιβόλου φύλακες,
 πυλωροὶ τε καὶ ὠτακουσθαὶ λεγόμενοι, ὥς ἂν ὁ
 βασιλεὺς αὐτός, δεσπότης καὶ θεὸς ὀνομαζόμενος,
 πάντα μὲν βλέποι, πάντα δὲ ἀκούοι. χωρὶς δὲ
 τούτων ἄλλοι καθειστήκεσαν προσόδων ταμίαι καὶ
 25 στρατηγοὶ πολέμων καὶ κυνηγεσίῳ δώρων τε
 ἀποδεκτῆρες τῶν τε λοιπῶν ἔργων ἕκαστοι κατὰ
 τὰς χρείας ἐπιμεληταί. τὴν δὲ σύμπασαν ἀρχὴν τῆς
 Ἀσίας, περατουμένην Ἑλλησπόντῳ μὲν ἐκ τῶν
 πρὸς ἐσπέραν μερῶν, Ἰνδῷ δὲ ἐκ τῶν πρὸς ἑῷ,
 διειλήφεσαν κατὰ ἔθνη στρατηγοὶ καὶ σατράπαι
 30 καὶ βασιλεῖς, δοῦλοι τοῦ μεγάλου βασιλέως, ἡμε-
 ροδρόμοι τε καὶ σκοποὶ καὶ ἀγγελιαφόροι φρυκ-
 τωρίων¹ τε ἐποπτῆρες. τοσοῦτος δὲ ἦν ὁ κόσμος,
 καὶ μάλιστα τῶν φρυκτωρίων,¹ κατὰ διαδοχὰς
 πυρσευόντων ἀλλήλοις² ἐκ περάτων τῆς ἀρχῆς
 μέχρι Σούσων καὶ Ἐκβατάνων, ὥστε τὸν βασι-
 35 λέα γινώσκειν αὐθημερόν πάντα τὰ ἐν τῇ Ἀσίᾳ
 398 b καινουργούμενα. νομιστέον δὲ τὴν τοῦ μεγά-
 λου βασιλέως ὑπεροχὴν πρὸς τὴν τοῦ τὸν κόσμον

¹ φρυκτωρίων . . . φρυκτωρίων scripsi : φρυκτωριῶν . . . φρυκτωριῶν Bekk.

grand scale and touched the heights of majesty and magnificence : the King himself, they say, lived in Susa or Ecbatana, invisible to all, in a marvellous palace with a surrounding wall flashing with gold, electrum and ivory ; it had a succession of many gate-towers, and the gateways, separated by many stades from one another, were fortified with brazen doors and high walls ; outside these the leaders and most eminent men were drawn up in order, some as personal bodyguards and attendants to the King himself, some as guardians of each outer wall, called Guards and the Listening-Watch, so that the King himself, who had the name of Master and God, might see everything and hear everything. Apart from these there were others appointed as revenue officials, leaders in war and in the hunt, receivers of gifts to the King, and others, each responsible for administering a particular task, as they were necessary. The whole Empire of Asia, bounded by the Hellespont in the West and the Indus in the East, was divided into nations under generals and satraps and kings, slaves of the Great King, with couriers and scouts and messengers and signals-officers. And such was the orderly arrangement of this, and particularly of the system of signal-beacons which were ready to burn in succession from the uttermost limits of the Empire to Susa and Ecbatana, that the King knew the same day all that was news in Asia. Now we must suppose that the majesty of the Great King falls short of the majesty of the god who rules the cosmos by as much

² *πυρσευόντων ἀλλήλοις* Lor. : *πυρσεουσῶν ἀλλήλαις* Bekk.

ἐπέχοντος θεοῦ τοσοῦτον καταδεεστέραν ὅσον τῆς
 ἐκείνου τὴν τοῦ φαυλοτάτου τε καὶ ἀσθενεστά-
 του ζώου, ὥστε, εἴπερ ἄσεμνον ἦν αὐτὸν αὐτῷ
 5 δοκεῖν Ξέρξην αὐτουργεῖν ἅπαντα καὶ ἐπιτελεῖν ἃ
 βούλοιο καὶ ἐφιστάμενον διοικεῖν, πολὺ μᾶλλον
 ἀπρεπὲς ἂν εἴη θεῷ. σεμνότερον δὲ καὶ πρε-
 πωδέστερον αὐτὸν μὲν ἐπὶ τῆς ἀνωτάτω χώρας
 ἰδρῦσθαι, τὴν δὲ δύναμιν διὰ τοῦ σύμπαντος κό-
 σμου διήκουσαν ἥλιόν τε κινεῖν καὶ σελήνην καὶ τὸν
 10 πάντα οὐρανὸν περιάγειν αἰτίον τε γίνεσθαι τοῖς
 ἐπὶ τῆς γῆς σωτηρίας. οὐδὲν γὰρ ἐπιτεχνήσεως
 αὐτῷ δεῖ καὶ ὑπηρεσίας τῆς παρ' ἐτέρων, ὥσπερ
 τοῖς παρ' ἡμῖν ἄρχουσι τῆς πολυχειρίας διὰ τὴν
 ἀσθένειαν, ἀλλὰ τοῦτο ἦν τὸ θειότατον, τὸ μετὰ
 ῥαστώνης καὶ ἀπλῆς κινήσεως παντοδαπὰς ἀπο-
 15 τελεῖν ἰδέας, ὥσπερ ἀμέλει δρῶσιν οἱ μηχανοποιοί,¹
 διὰ μιᾶς ὀργάνου σχαστηρίας πολλὰς καὶ ποικίλας
 ἐνεργείας ἀποτελοῦντες. ὁμοίως δὲ καὶ οἱ νευρο-
 σπᾶσται μίαν μήρινθον ἐπισπασάμενοι ποιοῦσι καὶ
 αὐχένα κινεῖσθαι καὶ χεῖρα τοῦ ζώου καὶ ὦμον καὶ
 ὀφθαλμόν, ἔστι δὲ ὅτε πάντα τὰ μέρη, μετὰ τινος
 20 εὐρυθμίας. οὕτως οὖν καὶ ἡ θεία φύσις ἀπὸ τινος

¹ μηχανοποιοί Z. I.or. (Notes): μηχανοτέχναι I.or. (*De Mundo*): μεγαλότεχνοι codd. pler. Bekk.

^a It is not clear what kind of machine is meant; the
 390

as the difference between the King and the poorest and weakest creature in the world, so that if it was beneath the dignity of Xerxes to appear himself to be the actual executor of all things, to carry out his wishes himself and to administer the Empire by personal supervision, it would be still more unbecoming for God. It is more noble, more becoming, for him to reside in the highest place, while his power, penetrating the whole of the cosmos, moves the sun and moon and turns the whole of the heavens and is the cause of preservation for the things upon the earth. He has no need of the contrivance and support of others, as rulers among us men need a multitude of workers because of their weakness; the most divine thing of all is to produce all kinds of result easily by means of a single motion, just like the operators of machines, who produce many varied activities by means of the machine's single release-mechanism.^a In the same way too the men who run puppet-shows,^b by pulling a single string, make the creature's neck move, and his hand and shoulder and eye, and sometimes every part of his body, according to a rhythmical pattern. So also the divine being,

"varied activities" probably refer to the various parts of the machine, and do not imply multi-purpose machines. *Mechanopoios* is most frequently used of military engineers. *Schasteria* is used of the release mechanism of catapults and ballistae. It is also used of the release-mechanism of automatic machines (such as Hero's machine for providing holy water); but in conjunction with *mechanopoios* and *organon* a reference to catapults, etc., seems more likely.

^b Plato twice refers to puppets in the *Laws* (644 D, 804 B) as well as in the shadow-theatre of the *Republic* (514); in the *Laws* the puppets are worked by wires. Aristotle uses the example of puppets to illustrate a scientific theory in *De Gen. An.* 734 b 10 ff.

ἀπλῆς κινήσεως τοῦ πρώτου τὴν δύναμιν εἰς τὰ
 συνεχῇ δίδωσι καὶ ἀπ' ἐκείνων πάλιν εἰς τὰ πορ-
 ρωτέρω, μέχρις ἂν διὰ τοῦ παντός διεξέλθῃ· κι-
 νηθὲν γὰρ ἕτερον ὑφ' ἑτέρου καὶ αὐτὸ πάλιν ἐκίνησεν
 ἄλλο σὺν κόσμῳ, δρῶντων μὲν πάντων οἰκείως ταῖς
 25 σφετέραις κατασκευαῖς, οὐ τῆς αὐτῆς δὲ ὁδοῦ πᾶσιν
 οὔσης, ἀλλὰ διαφόρου καὶ ἑτεροίας, ἔστι δὲ οἷς καὶ
 ἐναντίας, καίτοι τῆς πρώτης οἷον ἐνδόσεως εἰς
 κίνησιν μιᾶς¹ γενομένης· ὥσπερ ἂν εἴ τις ἐξ αἵπους²
 ὁμοῦ ῥίψειε σφαῖραν καὶ κύβον καὶ κῶνον καὶ κύ-
 λινδρον—ἕκαστον γὰρ αὐτῶν κατὰ τὸ ἴδιον κινη-
 30 θήσεται σχῆμα—ἢ εἴ τις ὁμοῦ ζῶον ἔνυδρόν τε καὶ
 χερσαῖον καὶ πτηνὸν ἐν τοῖς κόλποις ἔχων ἐκβάλοι·
 δῆλον γὰρ ὅτι τὸ μὲν νηκτὸν ἀλόμενον εἰς τὴν
 ἑαυτοῦ δίαιταν ἐκνήξεται, τὸ δὲ χερσαῖον εἰς τὰ
 σφέτερα ἦθη καὶ νομοὺς διεξερπύσει, τὸ δὲ ἀέριον
 ἐξαρθὲν ἐκ γῆς μετάρσιον οἰχήσεται πετόμενον,
 35 μιᾶς τῆς πρώτης αἰτίας πᾶσιν ἀποδοῦσης τὴν
 399 a οἰκείαν εὐμάρειαν. οὕτως ἔχει καὶ ἐπὶ κόσμῳ·
 διὰ γὰρ ἀπλῆς τοῦ σύμπαντος οὐρανοῦ περιαγωγῆς
 ἡμέρα καὶ νυκτὶ περατουμένης ἀλλοῖαι πάντων δι-
 ἐξοδοὶ γίνονται, καίτοι ὑπὸ μιᾶς σφαίρας περιεχο-
 μένων, τῶν μὲν θᾶπτον, τῶν δὲ σχολαιότερον
 5 κινουμένων παρά τε τὰ τῶν διαστημάτων μήκη
 καὶ τὰς ἰδίας ἐκάστων κατασκευάς. σελήνη μὲν
 γὰρ ἐν μηνὶ τὸν ἑαυτῆς διαπεραίνεται κύκλον αὐξο-
 μένη τε καὶ μειουμένη καὶ φθίνουσα, ἥλιος δὲ ἐν
 392

ON THE COSMOS, 6

with a single movement of the nearest element distributes his power to the next part and then to the more remote parts until it permeates the whole. One thing is moved by another, and itself then moves a third in regular order, all things acting in the manner appropriate to their own constitution ; for the way is not the same for all things, but different and various, in some cases quite opposite, though the key of the whole movement, as it were, is set by a single opening note. For instance, a similar effect would be produced if one threw from a height a sphere, a cube, a cone and a cylinder, all together : each of them will move in the manner appropriate to its own shape ; or if one held in the folds of one's cloak an aquatic animal, a land animal and a winged animal, and then threw them out all together ; clearly the animal that swims will leap into its own habitat and swim away, the land animal will crawl off to its own customary pursuits and pastures, and the winged creature will rise from the ground and fly away high in the air ; a single cause has restored to all of them the freedom to move, each in the manner of its species. So too in the case of the cosmos : by means of a single revolution of the whole heaven completed in a night and a day, the various motions of all the heavenly bodies are initiated, and though all are embraced in one sphere, some move rapidly and others more slowly, according to their distances and their individual characters. For the moon completes its orbit in a month, waxing and waning and disappearing ; the sun and those which have an equal

¹ *μῆς* Lor. : *μῖαν* codd. Bekk.

² *αἴπους* scripsi : *ἄγγους* codd. Lor. Bekk. : *ὄρους* Z : *per proclive* Ap.

399 a

ἐνιαυτῷ καὶ οἱ τούτου ἰσόδρομοι, ὃ τε Φωσφόρος
 καὶ ὁ Ἑρμοῦ λεγόμενος, ὁ δὲ Πυρόεις ἐν διπλασίονι
 10 τούτων χρόνῳ, ὁ δὲ Διὸς ἐν ἑξαπλασίονι τούτου,
 καὶ τελευταῖος ὁ Κρόνου λεγόμενος ἐν διπλασίονι
 καὶ ἡμίσει τοῦ ὑποκάτω. μία δὲ ἐκ πάντων ἁρ-
 μονία συναδόντων καὶ χορευόντων κατὰ τὸν οὐρανὸν
 ἐξ ἑνός τε γίνεται καὶ εἰς ἓν ἀπολήγει, κόσμον
 ἐτύμως τὸ σύμπαν ἀλλ' οὐκ ἀκοσμίαν ὀνομάσασα.
 15 καθάπερ δὲ ἐν χορῷ κορυφαίου κατάρξαντος
 συνεπηχεῖ πᾶς ὁ χορὸς ἀνδρῶν, ἔσθ' ὅτε καὶ γυ-
 ναικῶν, ἐν διαφόροις φωναῖς ὀξύτεραις καὶ βαρυ-
 τέραις μίαν ἁρμονίαν ἐμμελῆ κεραυνύντων, οὕτως
 ἔχει καὶ ἐπὶ τοῦ τὸ σύμπαν διέποντος θεοῦ· κατὰ
 γὰρ τὸ ἄνωθεν ἐνδόσιμον ὑπὸ τοῦ φερωνύμως ἄν
 20 κορυφαίου προσαγορευθέντος κινεῖται μὲν τὰ ἄστρο
 αἰεὶ καὶ ὁ σύμπας οὐρανός, πορεύεται δὲ διττὰς
 πορείας ὁ παμφαῆς ἥλιος, τῇ μὲν ἡμέραν καὶ
 νύκτα διορίζων ἀνατολῇ καὶ δύσει, τῇ δὲ τὰς τέσ-
 σαραις ὥρας ἄγων τοῦ ἔτους, πρόσω τε βόρειος καὶ
 ὀπίσω νότιος διεξέρπων. γίνονται δὲ ὑετοὶ κατὰ
 25 καιρὸν καὶ ἄνεμοι καὶ δρόσοι τά τε πάθη τὰ ἐν τῷ
 περιέχοντι συμβαίνοντα διὰ τὴν πρώτην καὶ ἀρχέ-
 γονον¹ αἰτίαν. ἔπονται δὲ τούτοις ποταμῶν ἐκροαί,
 θαλάσσης ἀνοιδήσεις, δένδρων ἐκφύσεις, καρπῶν
 πεπάνσεις, γοναὶ ζώων, ἐκτροφαί τε πάντων καὶ
 ἀκμαὶ καὶ φθίσεις, συμβαλλομένης πρὸς ταῦτα καὶ
 30 τῆς ἐκάστου κατασκευῆς, ὥς ἔφην. ὅταν οὖν ὁ
 πάντων ἡγεμών τε καὶ γενέτωρ, ἀόρατος ὢν ἄλλω

¹ ἀρχέγονον Wendland et Wilamowitz, Lor.: ἀρχαίγονον codd. Bekk.

course with it, namely Phosphorus (Venus) and Hermes (Mercury), complete their course in a year, Pyroeis (Mars) in twice this time, Zeus (Jupiter) in twelve years, and lastly the star called after Cronus (Saturn) in two and a half times the period of the one below it.^a The single harmony that is produced by all these as they sing and dance in concert round the heavens has one and the same beginning and one and the same end, in a true sense giving to the whole the name of "order" (κόσμος) and not "disorder" (ἀκοσμία). Just as in a chorus at the direction of the leader all the chorus of men, sometimes of women too, join in singing together, creating a single pleasing harmony with their varied mixture of high and low notes, so also in the case of the god who controls the universe : the note is sounded from on high by him who might well be called the chorus-master ; then the stars and the whole heavens move continually, and the all-shining sun makes his double journey, dividing night from day by his rising and setting, and bringing the four seasons of the year as he moves forwards to the North and back to the South. There are rains in due season, and winds, and falls of dew, and all the phenomena that occur in the atmosphere—all are the results of the first, original cause. These are followed by the springing up of rivers, the swelling of the sea, the growth of trees, the ripening of fruit, the birth of animals, the nurture, the prime and the decay of all things ; and the individual constitution of each thing contributes to the process, as I have said. So when the leader and author of all things, unseen except to the eye of

^a *i.e.* thirty years. These periods correspond to those of Eudoxus (*ap. Simplic. In de Caelo* 495. 26 ff.).

399 a

πλήν λογισμῶ, σημήνη πάσῃ φύσει μεταξὺ οὐρανοῦ
 τε καὶ γῆς φερομένη, κινεῖται πᾶσα ἐνδελεχῶς ἐν
 κύκλοις καὶ πέρασιν ἰδίους, ποτὲ μὲν ἀφανιζομένη,
 35 ποτὲ δὲ φαινομένη, μυρίας ιδέας ἀναφαίνουσά τε
 καὶ πάλιν ἀποκρύπτουσα ἐκ μιᾶς ἀρχῆς. ἔοικε

399 b

δὲ κομιδῇ τὸ δρώμενον τοῖς ἐν πολέμου καιροῖς
 μάλιστα γινομένοις, ἐπειδὴν ἡ σάλπιγξ σημήνη τῷ
 στρατοπέδῳ· τότε γὰρ τῆς φωνῆς ἕκαστος ἀκού-
 σας ὁ μὲν ἀσπίδα ἀναιρεῖται, ὁ δὲ θώρακα ἐνδύεται,
 5 ὁ δὲ κνημίδας ἢ κράνος ἢ ζωστήρα περιτίθεται·
 καὶ ὁ μὲν ἵππον χαλινοῖ, ὁ δὲ συνωρίδα ἀναβαίνει,
 ὁ δὲ σύνθημα παρεγγυᾷ· καθίσταται δὲ εὐθέως ὁ
 μὲν λοχαγὸς εἰς λόχον, ὁ δὲ ταξίαρχος εἰς τάξιν,
 ὁ δὲ ἵππεὺς ἐπὶ κέρας, ὁ δὲ ψιλὸς εἰς τὴν ἰδίαν
 ἐκτρέχει χώραν· πάντα δὲ ὑφ' ἓνα σημάντορα δο-
 10 νεῖται κατὰ προστάξιν τοῦ τὸ κράτος ἔχοντος ἡγε-
 μόνος. οὕτω χρὴ καὶ περὶ τοῦ σύμπαντος φρονεῖν·
 ὑπὸ γὰρ μιᾶς ῥοπῆς ὀτρυνομένων ἀπάντων γίνεται
 τὰ οἰκεία, καὶ ταύτης ἀοράτου καὶ ἀφανοῦς. ὅπερ
 οὐδαμῶς ἐστὶν ἐμπόδιον οὔτε ἐκείνῃ πρὸς τὸ δρᾶν
 οὔτε ἡμῖν πρὸς τὸ πιστεῦσαι· καὶ γὰρ ἡ ψυχὴ, δι'
 15 ἣν ζῶμέν τε καὶ οἴκους καὶ πόλεις ἔχομεν, ἀόρατος
 οὖσα τοῖς ἔργοις αὐτῆς¹ ὁράται· πᾶς γὰρ ὁ τοῦ βίου
 διάκοσμος ὑπὸ ταύτης εὖρηται καὶ διατέτακται καὶ
 συνέχεται, γῆς ἀρόσεις καὶ φυτεύσεις, τέχνης ἐπί-
 νοιαι, χρήσεις νόμων, κόσμος πολιτείας, ἔνδημοι
 πράξεις, ὑπερόριος πόλεμος, εἰρήνη. ταῦτα χρὴ
 20 καὶ περὶ θεοῦ διανοεῖσθαι, δυνάμει μὲν ὄντος ἰσχυ-
 ροτάτου, κάλλει δὲ εὐπρεπεστάτου, ζωῇ δὲ ἀθανά-
 του, ἀρετῇ δὲ κρατίστου, διότι πάσῃ θνητῇ φύσει

reason, gives the sign to every moving thing between heaven and earth, everything is moved continually in its orbit and within its peculiar limits, now disappearing, now appearing, revealing innumerable different forms and concealing them again, all from a single beginning. The process is very like what happens, particularly at moments in a war, when the trumpet gives a signal in a military camp ; then each man hears the sound, and one picks up his shield, another puts on his breast-plate, and a third his greaves or helmet or belt ; one harnesses his horse, one mounts his chariot, one passes on the watchword ; the company-commander goes at once to his company, the brigadier to his brigade, the cavalryman to his squadron, and the infantryman runs to his own station ; all is stirred by a single trumpeter to a flurry of motion according to the orders of the supreme commander. It is a similar idea that we must have of the universe : by a single inclination all things are spurred to action and perform their peculiar functions—and this single agent is unseen and invisible. Its invisibility is no impediment either to its own action or to our belief in it ; for the soul, whereby we live and build households and cities, though it is invisible is perceived through its deeds : for all the conduct of life is discovered, arranged and maintained by the soul—the ploughing and sowing of land, the inventions of art, the use of laws, the order of a city's government, the activities of people in their own country, and war and peace with foreign nations. This is what we must also believe about God, who is mightiest in power, outstanding in beauty, immortal in life, and supreme in excellence, because

¹ αὐτῆς codd. L.or. : αὐτοῖς codd. al. Bekk.

γενόμενος ἀθεώρητος ἀπ' αὐτῶν τῶν ἔργων θεωρεῖται. τὰ γὰρ πάθη, καὶ τὰ δι' αἵρος ἅπαντα καὶ τὰ ἐπὶ γῆς καὶ τὰ ἐν ὕδατι, θεοῦ λέγοντ' ἂν ὄντως
 25 ἔργα εἶναι τοῦ τὸν κόσμον ἐπέχοντος· ἐξ οὗ, κατὰ τὸν φυσικὸν Ἑμπεδοκλέα,

πάνθ' ὅσα τ' ἦν ὅσα τ' ἔσθ' ὅσα τ' ἔσται ὀπίσσω,
 δένδρεά τ' ἐβλάστησε καὶ ἀνέρες ἡδὲ γυναῖκες
 θῆρές τ' οἰωνοί τε καὶ ὕδατοθρέμμονες ἰχθῦς.

ἔοικε δὲ ὄντως, εἰ καὶ μικρότερον παραβαλεῖν,¹
 30 τοῖς ὀμφαλοῖς λεγομένοις τοῖς ἐν ταῖς ψαλίσιν [λίθοις],² οἱ μέσοι κείμενοι κατὰ τὴν εἰς ἑκάτερον μέρος ἔνδεσιν ἐν ἀρμονίᾳ τηροῦσι καὶ ἐν τάξει τὸ πᾶν σχῆμα τῆς ψαλίδος καὶ ἀκίνητον. φασὶ δὲ καὶ τὸν ἀγαλματοποιὸν Φειδίαν κατασκευάζοντα³ τὴν ἐν
 35 ἀκροπόλει Ἀθηναίων ἐν μέσῃ τῇ ταύτης ἀσπίδι τὸ ἑαυτοῦ πρόσωπον ἐντυπώσασθαι, καὶ συνδῆσαι τῷ
 400 a ἀγάλματι διὰ τινος ἀφανοῦς δημιουργίας, ὥστε ἐξ ἀνάγκης, εἴ τις βούλοιο αὐτὸ περιαιρεῖν, τὸ σύμπαν ἄγαλμα λύειν τε καὶ συγχεῖν. τοῦτον οὖν ἔχει τὸν λόγον ὁ θεὸς ἐν κόσμῳ, συνέχων τὴν τῶν ὄλων
 5 ἀρμονίαν τε καὶ σωτηρίαν, πλὴν οὔτε μέσος ὢν, ἔνθα ἡ γῆ τε καὶ ὁ θολερὸς τόπος οὗτος, ἀλλ' ἄνω καθαρὸς ἐν καθαρῷ χωρῷ βεβηκώς, ὃν ἐτύμως καλοῦμεν οὐρανὸν μὲν ἀπὸ τοῦ ὅρον εἶναι τὸν ἄνω, Ὀλυμπον δὲ οἶον ὀλολαμπῇ τε καὶ παντὸς ζόφου καὶ

¹ μικρότερον παραβαλεῖν Lor.: μικρότερον, παραβάλλειν τὸν κόσμον Bekk.

² λίθοις del. Wendland et Wilamowitz.

³ κατασκευάζοντα BDZ.; [Arist.] *De Mir. Ausc.* 155; Lor.: κατασκευαζόμενον Bekk.

though he is invisible to every mortal thing he is seen through his deeds. For it would be true to say that all the phenomena of the air, the land and the water are the works of the God who rules the cosmos; from whom, according to Empedocles^a the natural philosopher,

grows all that is and was and is yet to come,
the trees and the whole race of men and women,
beasts, birds and water-nurtured fish.

Though it is rather a humble comparison, he is truly like the so-called "keystones" of vaults, which lie in the middle and by their junction with each side ensure the proper fit of the whole structure of the vault and preserve its arrangement and stability. They say too that the sculptor Pheidias, when he was making the Athena on the Acropolis, carved his own face into the middle of her shield, and by some hidden trick of craftsmanship attached it to the statue in such a way that if anyone tried to remove it he inevitably destroyed and demolished the whole statue.^b And this is the position held in the cosmos by God, who maintains the orderliness and preservation of the whole: except that he is not in the centre—for here lies the earth, this turbulent, troubled place—but high aloft, pure in a pure region, which we rightly call "heaven" (οὐρανός) because it forms the uppermost boundary (ὄρος . . . ἄνω) or "Olympus" because it shines brightly all over (ὁλολαμπής) and is

^a Diels, *Vorsokr.* 31 B 21.

^b Cf. Ps.-Aristot. *De Mir. Ausc.* 846 a 19 ff.; Plut. *Pericles* 31; Cic. *Tusc. Disp.* i. 15. 34; Val. Max. viii. 14. 6. Cicero and Plutarch only mention the portrait. The statue was the gold and ivory Athena in the Parthenon. In several economic crises the gold was removed and melted down and later restored.

400 a

- ἀτάκτου κινήματος κεχωρισμένον, οἷα γίνεται παρ'
 10 ἡμῖν διὰ χειμῶνος καὶ ἀνέμων βίας, ὥσπερ ἔφη
 καὶ ὁ ποιητῆς [Ὅμηρος]¹

Οὐλυμπόνδ', ὅθι φασὶ θεῶν ἔδος ἀσφαλὲς αἰεὶ
 ἔμμεναι· οὐτ' ἀνέμοισι τινάσσεται οὔτε ποτ'
 ὄμβρῳ

δεύεται, οὔτε χιῶν ἐπιπίλνεται, ἀλλὰ μάλ' αἶθρη
 πέπταται ἀνέφελος, λευκὴ δ' ἐπιδέδρομεν αἶγλη.

- 15 συνεπιμαρτυρεῖ δὲ καὶ ὁ βίος ἅπας, τὴν ἄνω χώραν
 ἀποδοὺς θεῷ· καὶ γὰρ πάντες ἄνθρωποι ἀνατείνομεν
 τὰς χεῖρας εἰς τὸν οὐρανὸν εὐχὰς ποιούμενοι. καθ'
 ὃν λόγον οὐ κακῶς κακεῖνο ἀναπεφώνηται

Ζεὺς δ' ἔλαχ' οὐρανὸν εὐρὺν ἐν αἰθέρι καὶ νεφέλῃσι.

- 20 διὸ καὶ τῶν αἰσθητῶν τὰ τιμιώτατα τὸν αὐτὸν
 ἐπέχει τόπον, ἄστρα τε καὶ ἥλιος καὶ σελήνη·
 μόνα τε τὰ οὐράνια διὰ τοῦτο αἰεὶ τὴν αὐτὴν σώ-
 ζοντα τάξιν διακεκόσμηται, καὶ οὔποτε ἀλλοιω-
 θέντα μετεκινήθη, καθάπερ τὰ ἐπὶ γῆς εὐτρεπτα
 ὄντα πολλὰς ἑτεροιώσεις καὶ πάθη ἀναδέδεκται·

- 25 σεισμοὶ τε γὰρ ἤδη βίαιοι πολλὰ μέρη τῆς γῆς
 ἀνέρρηξαν, ὄμβροι τε κατέκλυσαν ἐξ ὕδατος καταρ-
 ραγέντες, ἐπιδρομαὶ τε κυμάτων καὶ ἀναχωρήσεις
 πολλάκις καὶ ἡπείρους ἐθαλάττωσαν καὶ θαλάττας
 ἡπείρωσαν, βιαί τε πνευμάτων καὶ τυφώνων ἔστιν

- 30 ὅτε πόλεις ὅλας ἀνέτρεψαν, πυρκαϊαὶ τε καὶ φλόγες
 αἱ μὲν ἐξ οὐρανοῦ γενόμεναι πρότερον, ὥσπερ
 φασίν, ἐπὶ Φαέθοντος τὰ πρὸς ἔω μέρη κατέφλεξαν,
 αἱ δὲ πρὸς ἐσπέραν ἐκ γῆς ἀναβλύσασαι καὶ ἐκφυ-
 σήσασαι, καθάπερ τῶν ἐν Αἴτνῃ κρατήρων ἀναρ-
 ραγέντων καὶ ἀνὰ τὴν γῆν φερομένων χειμάρρου

400 b δίκην. ἔνθα καὶ τὸ τῶν εὐσεβῶν γένος ἐξόχως

removed from all darkness and disorderly motion such as occurs among us when there is a storm or a violent wind ; as the poet says,^a

To Olympus, where they say the gods' dwelling stands
always safe ; it is not shaken by winds, nor drenched
by showers of rain, nor does snow come near it ; always
unclouded

the air spreads out, and a white radiance lies upon it.

And all ages bear witness to this fact, and allot the upper region to God : all of us men stretch out our hands to the heavens when we pray. According to this reasoning, the following also has been well said ^b :

To Zeus belongs the wide heaven in the clouds and the aether.

So also the same place is occupied by the most honoured of perceptible things, the stars and the sun and the moon ; and for this reason only the heavenly bodies always keep the same order and arrangement, and are never changed or altered ; while the transient things on earth admit many alterations and conditions. For violent earthquakes before now have torn up many parts of the earth, monstrous storms of rain have burst out and overwhelmed it, incursions and withdrawals of the waves have often made seas of dry land and dry land of seas ; sometimes whole cities have been overturned by the violence of gales and typhoons ; flaming fires from the heavens once burnt up the Eastern parts, they say, in the time of Phaëthon, and others gushed and spouted from the earth, in the West, as when the craters of Etna erupted and spread over the earth like a mountain-torrent. Here, too, the race of pious

^a Hom. *Od.* vi. 42-45.

^b Hom. *Il.* xv. 192.

¹ *Ομηρος om. Z Lor.

ἐτίμησε τὸ δαιμόνιον, περικαταληφθέντων ὑπὸ τοῦ ρεύματος διὰ τὸ βαστάζειν γέροντας ἐπὶ τῶν ὤμων γονεῖς καὶ σώζειν· πλησίον γενόμενος ὁ τοῦ πυρὸς ποταμὸς ἐξεσχίσθη παρέτρεψέ τε τοῦ φλογ-
 5 μοῦ τὸ μὲν ἔνθα, τὸ δὲ ἔνθα, καὶ ἐτήρησεν ἀβλα-
 βεῖς ἅμα τοῖς γονεῦσι τοὺς νεανίσκους.

Καθόλου δὲ ὅπερ ἐν νηὶ μὲν κυβερνήτης, ἐν ἄρματι δὲ ἡνίοχος, ἐν χορῶ δὲ κορυφαῖος, ἐν πόλει δὲ νομο(θέτη)s,¹ ἐν στρατοπέδῳ δὲ ἡγεμὼν, τοῦτο θεὸς ἐν κόσμῳ, πλὴν καθ' ὅσον τοῖς μὲν καματη-
 10 ρὸν τὸ ἄρχειν πολυκίνητόν τε καὶ πολυμέριμνον, τῷ δὲ ἄλυπον ἄπονόν τε καὶ πάσης κεχωρισμένον σωματικῆς ἀσθενείας· ἐν ἀκινήτῳ γὰρ ἰδρυμένος πάντα κινεῖ καὶ περιάγει, ὅπου βούλεται καὶ ὅπως, ἐν διαφόροις ἰδέαις τε καὶ φύσεσιν, ὥσπερ ἀμέλει καὶ ὁ τῆς πόλεως νόμος ἀκίνητος ὢν ἐν ταῖς τῶν
 15 χρωμένων ψυχαῖς πάντα οἰκονομεῖ τὰ κατὰ τὴν πολιτείαν· ἐφεπόμενοι γὰρ αὐτῷ δηλονότι ἐξίσιν ἄρχοντες μὲν ἐπὶ τὰ ἄρχεῖα, θεσμοθέται δὲ εἰς τὰ οἰκεῖα δικαστήρια, βουλευταὶ δὲ καὶ ἐκκλησιασ-
 20 ται εἰς συνέδρια τὰ προσήκοντα, καὶ ὁ μὲν τις εἰς τὸ πρυτανεῖον βαδίζει σιτησόμενος, ὁ δὲ πρὸς τοὺς δικαστὰς ἀπολογησόμενος, ὁ δὲ εἰς τὸ δεσμωτή-
 ριον ἀποθανούμενος. γίνονται δὲ καὶ δημοθoinαὶ νόμιμοι καὶ πανηγύρεις ἐνιαύσιοι θεῶν τε θυσίαι καὶ ἡρώων θεραπείαι καὶ χοαὶ κεκμηκότων· ἄλλα δὲ ἄλλως ἐνεργούμενα κατὰ μίαν πρόσταξιν ἢ νό-
 μimon ἐξουσίαν σώζει τὸ τοῦ ποιήσαντος ὄντως ὅτι

25 πόλις δ' ὁμοῦ μὲν θυμιαμάτων γέμει,
 ὁμοῦ δὲ παιάνων τε καὶ στεναγμάτων,

¹ νομο(θέτη)s conl. I.or. : νόμος codd. Bekk.

ON THE COSMOS, 6

men was especially honoured by the divinity,^a when they were overtaken by the stream of lava, because they were carrying their old parents on their shoulders to keep them safe ; for when the river of fire drew near them it was split in two and turned one part to this side and the other to that, and preserved unharmed both the young men and their parents.

In a word then, as the helmsman in his ship, as the charioteer in his chariot, as the leader in a chorus, as the lawgiver in a city, as the commander in a military camp, so is God in the cosmos, except that their command is wearisome and fraught with many movements and cares, while God rules without pain and toil, free from all bodily weakness : for he is established in the immovable, and moves and directs all things as and where he wishes, among the varieties of form and nature ; just as the law of the city, itself immovably established within the minds of those who observe it, disposes all the activities of the state : for in obedience to the law the magistrates go to their offices, the judges to their appropriate courts, the councillors and members of the assembly to their appointed meeting-places ; and one man goes to the prytaneum for his meals, another to the law-courts to defend himself, a third to prison to die. The law also ordains public feasts and annual festivals, sacrifices to the gods, cults of heroes and libations to the dead : and other varied activities, all arising from a single ordinance or authority of the law, accord well with these words of the poet ^b :

The city is full of heavy incense-fumes,
with crying for deliverance, and laments.

^a The story is told of Amphion and his brother by the poet of the *Aetna* (625 f.)

^b Soph. *O.T.* 4-5.

400 b

οὕτως ὑποληπτέον καὶ ἐπὶ τῆς μείζονος πόλεως,
 λέγω δὲ τοῦ κόσμου· νόμος γὰρ ἡμῖν ἰσοκλινῆς ὁ
 θεός, οὐδεμίαν ἐπιδεχόμενος διόρθωσιν ἢ μετά-
 30 θεσιν, κρείττων δέ, οἶμαι, καὶ βεβαιότερος τῶν ἐν
 ταῖς κύρβεσιν ἀναγεγραμμένων. ἡγουμένου δὲ
 ἀκινήτως¹ αὐτοῦ καὶ ἐμμελῶς ὁ σύμπας οἰκονο-
 μεῖται διάκοσμος οὐρανοῦ καὶ γῆς, μεμερισμένος
 κατὰ τὰς φύσεις πάσας διὰ τῶν οἰκείων σπερμάτων
 εἷς τε φυτὰ καὶ ζῶα κατὰ γένη τε καὶ εἶδη· καὶ γὰρ
 401 a ἄμπελοι καὶ φοίνικες καὶ περσέαι

συκέαι τε γλυκεραὶ καὶ ἐλαῖαι,
 ὥς φησιν ὁ ποιητής, τά τε ἄκαρπα μέν, ἄλλας δὲ
 παρεχόμενα χρείας, πλάτανοι καὶ πίτνες καὶ πύξοι
 κλήθρη τ' αἰγειρός τε καὶ εὐώδης κυπάρισσος,
 5 αἶ τε καρπὸν ὀπώρας ἡδὺν ἄλλως δὲ δυσθησαύ-
 ριστον φέρουσαι,

ὄχναι καὶ ροιαί καὶ μηλέαι ἀγλαόκαρποι,
 τῶν τε ζώων τά τε ἄγρια καὶ ἡμερα, τά τε ἐν ἀέρι
 καὶ ἐπὶ γῆς καὶ ἐν ὕδατι βοσκόμενα, γίνεται καὶ
 10 ἀκμάζει καὶ φθείρεται τοῖς τοῦ θεοῦ πειθόμενα
 θεσμοῖς· “πᾶν γὰρ ἐρπετὸν πληγῇ νέμεται,” ὥς
 φησιν Ἡράκλειτος.

7. Εἷς δὲ ὢν πολυνύμῳ ἐστὶ, κατονομαζόμενος
 τοῖς πάθεσι πᾶσιν ἅπερ αὐτὸς νεοχμοῖ. καλοῦμεν
 δὲ αὐτὸν καὶ Ζῆνα καὶ Δία, παραλλήλως χρώμενοι
 15 τοῖς ὀνόμασιν, ὥς καὶ εἰ λέγοιμεν δι' ὃν ζῶμεν.
 Κρόνου δὲ παῖς καὶ χρόνου λέγεται, διήκων ἐξ
 αἰῶνος ἀτέρμονος εἰς ἕτερον αἰῶνα· ἀστραπαῖός
 τε καὶ βρονταῖος καὶ αἰθριος καὶ αἰθέριος κεραυνίος

¹ ἀκινήτως Stob. Lor. : ἀεικινήτως codd. Bekk.

So it is, we must suppose, with that greater city, the cosmos : God is a law to us, impartial and admitting no correction or change ; he is surely a stronger and more stable law than those inscribed on tablets.^a Under his motionless and harmonious guidance all the orderly arrangement of heaven and earth is administered, extending over all things through the seed proper to their kind, to plants and animals by genus and species ; vines, palms and *perseae*, “sweet figs and olives,”^b as the poet says, and those that bear no fruit but serve some other purpose, planes and pines and box-trees, “the alder, the poplar and the sweet-scented cypress-tree”^c ; and those which in the autumn bring forth a harvest that is sweet but hard to store, “pears and pomegranates and apples with shining fruit”^d ; and animals, some wild, some tame, that live in the air and on the earth and in the water,—all these come into being and grow strong and perish, obedient to the laws of god. “For every creature that crawls is driven to pasture by his goad,”^e as Heracleitus says.

7. Though he is one, he has many names, according to the many effects he himself produces. We call him both Zena and Dia, using the names interchangeably,^f as if we were to say “Him through whom (διὰ οὗ) we live (ἐξ οὗ).” He is called the Son of Cronus and of time (Chronos), because he lives from endless age to another age ; God of Lightning and of Thunder, God of the Air and Aether, God of the Thunderbolt

^a At Athens, tablets on which the early laws were written.

^b Hom. *Od.* xi. 590.

^c Hom. *Od.* v. 64.

^d Hom. *Od.* xi. 589.

^e Diels, *Vorsokr.*⁶ 22 B 11.

^f Ζήνα and Δία are used interchangeably as accusatives of Zeus.

401 a

τε καὶ ὑέτιος ἀπὸ τῶν ὑετῶν καὶ κεραυνῶν καὶ τῶν
 ἄλλων καλεῖται. καὶ μὴν ἐπικάρπιος μὲν ἀπὸ τῶν
 20 καρπῶν, πολιεὺς δὲ ἀπὸ τῶν πόλεων ὀνομάζεται,
 γενέθλιός τε καὶ ἐρκείος καὶ ὁμόγνιος καὶ πατρῷος¹
 ἀπὸ τῆς πρὸς ταῦτα κοινωνίας, ἑταιρεῖός τε καὶ
 φίλιος καὶ ξένιος καὶ στρατίος καὶ τροπαιοῦχος,
 καθάρσιός τε καὶ παλαμναῖος καὶ ἰκέσιος καὶ μειλί-
 χιος, ὥσπερ οἱ ποιηταὶ λέγουσι, σωτήρ τε καὶ
 25 ἐλευθέριος ἐτύμως, ὥς δὲ τὸ πᾶν εἰπεῖν, οὐράνιός
 τε καὶ χθόνιος, πάσης ἐπώνυμος φύσεως ὦν καὶ
 τύχης, ἅτε πάντων αὐτὸς αἴτιος ὢν. διὸ καὶ ἐν
 τοῖς Ὀρφικοῖς οὐ κακῶς λέγεται

Zeὺς πρῶτος γένετο, Zeὺς ὕστατος ἀρχικέραυνος².
 Zeὺς κεφαλὴ, Zeὺς μέσσα, Διὸς δ' ἐκ πάντα
 τέτυκται.

401 b

Zeὺς πυθμὴν γαίης τε καὶ οὐρανοῦ ἀστερόεντος.
 Zeὺς ἄρσην γένετο, Zeὺς ἄμβροτος ἔπλετο νύμφη.
 Zeὺς πνοιὴ πάντων, Zeὺς ἀκαμάτου πυρὸς ὁρμή.
 Zeὺς πόντου ρίζα, Zeὺς ἥλιος ἡδὲ σελήνη.

5 Zeὺς βασιλεύς, Zeὺς ἀρχὸς ἀπάντων ἀρχικέραυ-
 νος³.

πάντας γὰρ κρύψας αὖθις φάος ἐς πολυγηθὲς
 ἐξ ἱερῆς κραδίης ἀνενέγκατο, μέρμερα ρέζων.

Οἶμαι δὲ καὶ τὴν Ἀνάγκην οὐκ ἄλλο τι λέγεσθαι
 πλὴν τοῦτον, οἷονεὶ ἀνίκητον αἰτίαν⁴ ὄντα, Εἰμαρ-
 10 μένην δὲ διὰ τὸ εἶρειν τε καὶ χωρεῖν ἀκωλύτως,

¹ πατρῷος Wendland et Wilamowitz, Lor. : πάτριος codd. Bekk.

² ἀρχικέραυνος P Lor. : ἀργικέραυνος codd. cet. Bekk. (et 401 b 5).

and the Rain—he takes his name from all these things. He is called Harvest-God and City-God, God of the Family and the Household, God of Kinsmen and Ancestral God, because of his connexion with these things; God of Fellowship and Friendship and Hospitality, of War and Victory, of Purification and Vengeance, of Supplication and Grace, as the poets say, and in a true sense Saviour and Liberator. To sum up all, he is a God of Heaven and God of Earth,^a and takes his name from every kind of nature and estate; for he himself is the cause of all. So it is rightly written in the Orphic books^b:

Zeus is the first-born, Zeus is last, the lord of the lightning;
Zeus is the head, Zeus the centre; from Zeus comes all
that is;

Zeus is the foundation of the earth and the starry heavens;
Zeus is a man, Zeus an immortal maid;

Zeus is the breath of all things, Zeus is the spring of tire-
less fire;

Zeus is the root of ocean, Zeus is the sun and moon;

Zeus is king, Zeus is the master of all, the lord of the
lightning.

For he hid all men away, and has brought them again to
the lovely light

from the holiness of his heart, working great marvels.

I think too that Necessity (Ἀνάγκη), is nothing but another name for him, as being a cause that cannot be defeated (ἀνίκητος); and Destiny (Εἰμαρμένη), because he binds things together (εἶρπειν) and moves

^a *Xθόνιος* usually implies the Underworld; but Pseudo-Aristotle is probably stretching the meaning slightly to suit his own cosmology.

^b Kern, *Fragm. Orph.* 21 a.

³ vid. 401 a 28.

⁴ αἰρίαν CG Lor.: οὐσίαν codd. al. Bekk.

Πεπρωμένην δὲ διὰ τὸ πεπερατῶσθαι πάντα καὶ
 μηδὲν ἐν τοῖς οὖσιν ἄπειρον εἶναι, καὶ Μοῖραν μὲν
 ἀπὸ τοῦ μεμερίσθαι, Νέμεσιν δὲ ἀπὸ τῆς ἐκάστω
 διανεμήσεως, Ἀδράστειαν δὲ ἀναπόδραστον αἰτίαν
 οὖσαν κατὰ φύσιν, Αἴσαν δὲ αἰεὶ οὖσαν. τά τε περὶ
 15 τὰς Μοῖρας καὶ τὸν ἄτρακτον εἰς ταῦτό πως νεύει·
 τρεῖς μὲν γὰρ αἱ Μοῖραι, κατὰ τοὺς χρόνους με-
 μερισμέναι, νῆμα δὲ ἀτράκτου τὸ μὲν ἐξειργα-
 σμένον, τὸ δὲ μέλλον, τὸ δὲ περιστρεφόμενον·
 τέτακται δὲ κατὰ μὲν τὸ γεγονὸς μία τῶν Μοιρῶν,
 Ἄτροπος, ἐπεὶ τὰ παρελθόντα πάντα ἄτρεπτά ἐστι,
 20 κατὰ δὲ τὸ μέλλον Λάχεσις—[εἰς]¹ πάντα γὰρ ἡ
 κατὰ φύσιν μένει λῆξις—κατὰ δὲ τὸ ἐνεστὸς
 Κλωθῶ, συμπεραίνουσά τε καὶ κλώθουσα ἐκάστω
 τὰ οἰκεῖα. περαίνεται δὲ καὶ ὁ μῦθος οὐκ ἀτάκτως.
 Ταῦτα δὲ πάντα ἐστὶν οὐκ ἄλλο τι πλὴν ὁ θεός,
 καθάπερ καὶ ὁ γενναῖος Πλάτων φησὶν· “ὁ μὲν δὴ
 25 θεός, ὥσπερ ὁ παλαιὸς λόγος, ἀρχὴν τε καὶ τελευτὴν
 καὶ μέσα τῶν ὄντων ἀπάντων ἔχων, εὐθεία περαίνει
 κατὰ φύσιν πορευόμενος· τῷ δὲ αἰεὶ ξυνέπεται δίκη,
 τῶν ἀπολειπομένων τοῦ θείου νόμου τιμωρός—ἥς
 ὁ γενήσεσθαι² μέλλων μακάριός τε καὶ εὐδαίμων
 ἐξ ἀρχῆς εὐθὺς μέτοχος εἴη.”

¹ εἰς del. Wendland et Wilamowitz.

² γενήσεσθαι Bücheler: εὐδαιμονήσειν vel εὐδαιμονῆσαι codd.
 (cf. Plato, *Laws* 716 A).

ON THE COSMOS, 7

without hindrance ; Fate (Πεπρωμένη), because all things are finite (πεπερατωσθαι) and nothing in the world is infinite ; Moira, from the division of things (μερίζειν) ; Nemesis, from the allocation of a share to each (διανέμησις) ;Adrasteia—a cause whose nature is to be inescapable (ἀναπόδραστος αἰτία) ; and Aisa—a cause that exists for ever (ἀεὶ οὖσα). The story of the Fates (Μοῖραι) and the spindle also has much the same tendency : there are three Fates, corresponding to different times, and part of the yarn on their spindles is already completed, part is still to be spun, and part is now being worked. The past is the concern of one of the Fates, called Atropos, because all past things are irreversible (ἄτρεπτα) ; the future belongs to Lachesis, for a fortune allotted (λῆξις) by nature awaits all things ; the present is Clotho's province, who settles each man's own destiny and spins (κλώθειν) his thread. So the story ends, and it is well said.

All these things are no other than God, as the great Plato tells us ^a : " God, as the ancient story says, holding the beginning and the end and the middle of all things that are, moves by a straight path in the course of nature, bringing them to fulfilment ; and behind him, taking vengeance on all that fall short of the divine law, follows Justice—let no man be without this, even from his earliest years, if he is to live in blessed happiness."

^a ὁ μὲν . . . τιμωρός *Laws* 715 E—716 A ; ἡς . . . εἴη *Laws* 730 c. The antecedent of ἡς in Plato is ἀλήθεια. Pseudo-Aristotle runs the two passages together, making δίκη the antecedent of ἡς.



INDICES

ON SOPHISTICAL REFUTATIONS

References are given according to page, column and line of Bekker's Berlin edition, reproduced in this edition in the left-hand margin; otherwise references are to chapters (Roman figures).

I. GREEK INDEX

- | | |
|--|---|
| <p>ἄγνοια (τοῦ ἐλέγχου) 166 b 24,
167 a 21 ff., 168 a 19 ff.
ἀδολεσχεῖν 165 b 16, 173 a
32 ff., 181 b 25 ff.
ἀμφιβολία 165 b 26, 166 a 7 ff.
See ambiguity
Ἀναλυτικά 165 b 9
ἄπειρον 165 a 12, 167 b 13, 170
a 23 ff.
ἀπλῶς (τὸ ἀ. λέγεσθαι) 166 b
23, 37 ff., 168 b 11 ff.,
169 b 9 ff.
ἀποδεικτικός (λόγος) 165 b 9
ἀπόδειξις 170 a 24 ff., 172 a
15 ff.

βαρβαρίζειν 165 b 22

γένος (school of philosophy)
172 b 30
γινώμαι 176 b 18

διαίρεσις 165 b 27, 166 a 33,
168 a 27, 169 a 26, 177 a
33 ff., 179 a 14</p> | <p>διαλεκτική, see dialectic
διάνοια 170 b 13 ff.
διδασκαλικός (λόγος) 165 a
39 ff.
διδάσκειν 171 a 32

ἐλεγχος, def. 165 a 3, 167 a
22 ff.; false def. of 167 a
22, 168 b 17 ff.; and συλ-
λογισμός 171 a 3 ff.
ἐλληνίζειν 182 a 34
ἐπάγειν, ἐπαγωγή 165 b 28, 174
a 34
ἐπόμενον 166 b 25, 167 b 1 ff.,
168 b 28 ff., 169 b 7 ff.,
XXVIII
ἐριστικός 165 b 1 ff., 171 b 8 ff.,
175 a 33 ff.

ζωή 167 b 28 ff.

νόμος (opp. φύσις) 173 a 11 ff.

ὁμοιοσχημοσύνη 168 a 26, 170 a
15</p> |
|--|---|

INDICES

ὁμωνυμία 165 b 26, 29 ff., 169 a 23 ff., 170 a 14
 ὄνομα (dist. πράγμα) 165 a 7 ff., b 29, 167 a 24; (dist. διάνοια) 170 b 13 ff.
 ὀργή 174 a 21

πειραστικός 165 b 1 ff., 169 b 25 ff., 171 b 5 ff. See examination
 προσωδία 165 b 27, 166 b 1, 168 a 27, 169 a 29, 177 b 3, 35 ff., 179 a 15

σημείον (ἀπόδειξις κατὰ τὸ σ.) 167 b 10
 σολοικισμός 165 b 15. See solecism
 σοφιστικός 169 b 21, 171 b 7 ff. and *passim*; σ. τέχνη = def. 165 a 22

συκοφάντημα 174 b 9
 συλλογισμός *passim*; def. 165 a 1
 συμβεβηκός 166 b 22, 28 ff., 168 a 34 ff., b 27 ff., 169 b 3 ff., 179 a 27
 σύνθεσις 165 b 27, 166 a 22 ff., 168 a 27, 169 a 26, 177 a 33 ff., 179 a 13

τετραγωνισμός, τετραγωνίζειν 171 b 15 ff., 172 a 3 ff.

φιλονεικία 174 a 21
 φιλοσοφία 175 a 5
 φύσις (opp. νόμος) 173 a 7 ff.

ψευδογράφημα, ψευδογράφος, ψευδογραφεῖν 171 b 14 ff., 36 ff.

II. INDEX OF NAMES AND SUBJECTS

absolute (opp. qualified) use of expressions 166 b 23, 37 ff., 168 b 11 ff., 169 b 11 ff., 180 a 23
 accent 165 b 27, 166 b 1, 168 a 27, 169 a 29, XXI, 179 a 15; written 177 b 3
 accident (συμβεβηκός) 166 b 22, 28 ff., 168 a 34 ff., b 27 ff., 169 b 3 ff., 179 a 27
 Achilles 166 a 38
 ambiguity (ἀμφιβολία) 165 b 26, 166 a 7 ff., XVII, 177 a 16 ff., 179 a 20
 Antiphon 172 a 7

babbling, see ἀδολεσχεῖν
 breathings, written 177 b 4
 412

Callias 176 a 1, 7
 Callicles 173 a 8
 Calliope 173 b 31
 case-forms 173 b 26 ff., 182 a 12 ff.
 category-mistakes 168 a 26, 169 a 35, 178 a 6 ff., b 24 ff.
 cause, fallacy of mistaken 166 b 26, 167 b 21 ff., 169 b 14
 Cleon 182 a 32
 Cleophon 174 b 28
 consequent (τὸ ἐπόμενον), fallacy of 166 b 25, 167 b 1 ff., 168 b 28 ff., 169 b 7 ff., XXVIII
 contentious argument 165 b

ON SOPHISTICAL REFUTATIONS

- 1 ff. and *passim*; five aims of III
- Coriscus 166 b 33, 173 b 31, 39, 175 b 20 ff., 176 a 7, 179 a 1, b 3 ff., 181 a 11, 182 a 20
- demonstrative adjectives 175 b 20 ff.
- demonstrative arguments 165 b 9, 170 a 24 ff., 172 a 15 ff.
- dialectic 165 a 39 ff., 169 b 26, 171 b 1 ff., 174 a 16, 183 b 1
- diction, see language
- didactic argument 165 a 39 ff., 171 a 32 ff.
- equivocation (*ὁμωνομία*) 165 b 26, 30 ff., 168 a 25, 169 a 23 ff., XVII, 177 a 10 ff., 178 a 24 ff., 179 a 17
- Ethiopian 167 a 12
- Euthydemus 177 b 12
- examination 165 b 1 ff., 169 b 25 ff., 171 b 5 ff., 172 a 28, 183 b 1
- expression, see language
- genitive (ambiguity of) 180 a 9 ff.
- Gorgias 183 b 37
- Hippocrates 171 b 15
- Homer, *Iliad* 171 a 10; quoted 166 b 4 ff., 180 a 22
- ignoratio elenchi* 166 b 24, 167 a 21 ff., 181 a 1 ff.; other fallacies reducible to 168 a 18 ff.
- Indian 167 a 8
- induction 165 b 28, 174 a 34
- language, fallacies dependent on IV, 166 b 10, 168 a 24 ff., 169 a 37 ff., XIX-XXIII
- length (as confusing device) 174 a 17 ff.
- Lycophron 174 b 32
- Lysander 176 b 5
- Mandrobulus* 174 b 28
- Melissus 167 b 13, 168 b 36, 181 a 28
- names, symbols for things 165 a 7 ff. See *ὄνομα*
- paradox 165 b 15, 172 b 11 ff., 174 b 13 ff., 175 b 33 ff.
- Parmenides 182 b 27
- petitio principii* 166 b 25, 167 a 37 ff., 168 b 23 ff., 169 b 13, 181 a 15 ff.
- Piraeus 177 b 12
- Plato, *Gorgias* 173 a 7
- proposition (*πρότασις*) 169 a 7 ff., b 17, 172 b 8
- Protagoras 173 b 20
- qualified use of expressions 166 b 23, 37 ff., 168 b 11 ff., 169 b 11 ff., 180 a 23 ff.
- Sicily 177 b 13
- Socrates 166 b 34, 183 b 7
- solecism 165 b 15, 173 b 17 ff., 182 a 8 ff.
- sophistry 171 b 25 ff., 172 b 12, 174 b 13; def. 165 a 22

INDICES

substance 168 a 26, 169 a 35, 170 a 15, 178 a 6 ff., 178 b 24 ff	“ third man ” argument 178 b 37
Themistocles 176 a 1	Zeno 172 a 9, 179 b 20, 182 b 27

COMING-TO-BE AND PASSING-AWAY

For a Greek index see the edition by H. H. Joachim (*Aristotle on Coming-to-be and Passing-away*, Oxford, 1922), pp. 278-296.

INDEX OF NAMES AND SUBJECTS

References are given according to page, column and line of Bekker's Berlin edition, reproduced in this edition in the left-hand margin; otherwise references are to chapters (Roman figures for book, followed by Arabic figures for chapter).

- action (opp. passion) 322 b 7 ff., 323 b 1 ff., I. 7-8
- air 328 b 35 ff. See elements
- alteration (*ἀλλοίωσις*) 327 a 16, 329 b 2 ff., 331 a 9, 332 a 8 ff., 337 a 35; dist. coming-to-be I. 1-4; dist. growth I. 5; illogical for Pluralists 314 b 15 ff., 329 b 2; Atomists on 315 b 7; =change of quality 319 b 6 ff., 329 a 19; in the soul 334 a 10
- analogy 333 a 29 ff.
- Anaxagoras: "elements" of 314 a 12 ff., fr. B 17 314 a 12
- (Aristotle, other works): *Physics* 316 b 18, 317 b 14, 318 a 4, 320 b 28, 323 a 3, 329 a 27, 336 a 13, 19, 337 a 18, 25; *De Caelo* 315 b 31, 325 b 34, 331 a 7; *Metaphysics* 336 b 29
- art (opp. nature) 335 b 28 ff.
- association (*σύγκρισις*) 315 b 17, 317 a 13 ff., 322 b 7 ff., 329 a 4 ff., b 27, 333 b 12 ff.
- Atomists, see Democritus, Leucippus
- atoms 314 a 21 ff., I. 2, 325 a 28 ff., b 34
- categories 317 b 6 ff., 319 a 11
- cause, efficient opp. material 318 a 1 ff.; efficient 324 b 13 ff., II. 10; material 318 a 1 ff., 319 a 19, 335 a 30 ff.; formal 336 a 3; final 335 b 6; causes of coming-to-be II. 9-11
- chance 333 b 7 ff.

INDICES

cold, def. 329 b 29. See con-
traries

colour, Democritus on 316
a 2

coming-to-be: dist. altera-
tion, growth I. 1-5; pro-
duced by elements I. 6-
II. 8; material and formal
causes of II. 9; final and
efficient causes of II. 10;
necessity in II. 11

composition (*σύνθεσις*) 315
a 23, 317 a 12, 327 a 18,
334 a 27; dist. mixture
328 a 6 ff.

compound bodies, how
formed II. 7-8

condensation 330 b 10

contact 316 a 30 ff., 322 b
22 ff., 328 b 26

contraries 314 b 26, 319 a
20 ff., 324 a 2 ff., 328 a 31,
329 a 32 ff., II. 2-8, 336
a 31

cycle of coming-to-be 331 b
3 ff., II. 10-11

Democritus 316 a 1, 323 b
10, 325 a 2 ff., 326 a 1 ff.,
327 a 19; elements of 314
a 17 ff., 315 b 29 ff.;
praised 315 a 34 ff.

diminution 314 b 15 ff., 319
b 32, 320 b 31, 322 a 33,
327 a 23

Diogenes fr. B 2 322 b 13

dissociation (*διάκρισις*) 315
b 17, 317 a 13 ff., 322 b
7 ff., 329 a 4 ff., b 27, 333
b 13 ff.

division: of bodies 316 a
16 ff., 318 a 21, 325 a 8,

327 a 10 ff.; and mixture
328 a 15 ff.

dry, def. 329 b 31. See con-
traries

earth, see elements

elements (earth, air, fire,
water) II. 1-8; in Pre-
Socratics 314 a 11 ff. (see
also Empedocles); inter-
change of 318 b 4 ff., 322
b 2 ff., 331 a 7 ff., 333 b
14, 337 a 8; only four 332
a 26; in compounds II.
7-8

Empedocles 324 b 33, 325 b
1 ff., 329 a 3, b 1, 330
b 20, 334 a 27; elements
of 314 a 12 ff., II. 6;
fr. B 8 314 b 7, 333 b 14;
B 17 333 a 19; B 37 333
b 1; B 53 334 a 3; B 54
334 a 5

ether 333 b 2, 334 a 2

farmers 335 a 14

fire 318 b 3 ff., 319 a 15 ff.,
320 b 20 ff., 322 a 10 ff.,
323 b 8 ff., 324 a 9, 325 a
20, 327 a 4 ff., b 11 ff.,
328 b 35 ff., II. 3-8, 336
a 7 ff., 337 a 5 ff.; only
element fed 335 a 16;
like form 335 a 19. See
elements

food 321 a 32 ff., 322 a 1 ff.,
327 b 14 ff., 335 a 10 ff.

form 324 b 5 ff., 328 b 11,
335 a 16, 338 b 13 ff.;
dist. privation 318 b 17;
dist. matter 321 b 21 ff.,
322 a 2 ff., 28 ff.; = final

COMING-TO-BE AND PASSING-AWAY

- cause 335 b 6; Platonic Forms 335 b 11 ff.
- God 333 b 21, 336 b 33
- growth 314 a 3, 315 a 28 ff., 325 b 4, 333 a 35; and diminution 314 b 15 ff., 327 a 23; dist. coming-to-be I. 5
- heat 314 b 18 ff., 318 b 16, 322 b 16, 324 b 19, 326 a 4, 327 a 3 ff., 329 a 12
- heavens 338 a 19
- homoeomerics: in Anaxagoras 314 a 17 ff. See parts (uniform)
- hot 329 b 27. See contraries, heat
- increase, see growth
- indivisible magnitudes I. 2
- intermediate (element) 332 a 19 ff.
- Leucippus 325 a 2, 23 ff.; "elements" of 314 a 12 ff.; on alteration, etc. 315 b 6 ff.
- liquid 314 b 19, 322 a 2, 327 a 17 ff., 328 b 4, 329 b 19 ff., 332 b 20 ff., 334 b 29 ff., 335 a 1 ff.
- Love (in Empedocles) 315 a 17, 333 b 12 ff.
- Lynceus 328 a 15
- matter I. 6-10, 328 b 33 ff., 332 a 18, 35, 334 b 3, 335 b 18 ff.; def. 320 a 2; inseparable 320 a 33, 329 a 10, 30
- mean (between contraries) 332 a 35, 334 b 27 ff.
- Melissus, see 325 a 3
- mixture 315 b 4, 321 b 1, 322 b 8, 327 a 30 ff., 328 a 6 ff., b 22, 333 b 19, 334 b 19; "pores" theory of 324 b 32
- moist 329 b 31. See contraries, liquid
- Monists 314 a 7 ff.
- motion 315 a 28, 323 a 18, 324 a 27 ff., 334 a 8 ff., II. 9-10, 338 b 2 ff.; in Empedocles 333 b 23; natural 333 b 27 ff.
- necessity 335 a 34, II. 11
- nutrition (*τροφή*) 322 a 23, See food
- Parmenides 330 b 14; fr. B 8 318 b 6. See 325 a 3
- parts (uniform and non-uniform) 321 b 18 ff., 322 a 19 ff.
- perception: and mixture 327 b 34 ff.; perceptibility= reality 318 b 19
- physical method: dist. dialectical 316 a 10 ff.
- place 320 a 20 ff., 323 a 1 ff., 334 b 2 ff., 337 a 27 ff.
- planes, indivisible 315 b 30 ff., 325 b 26 ff., 33, 326 a 22
- plants 335 a 12
- Plato 315 a 29 ff., 325 b 25 ff., 329 a 14, 332 a 29; "Divisions" of 330 b 16; *Timaeus* 315 b 30, 325 b 24, 329 a 13, 330 b 16,

INDICES

332 a 29 ; *Phaedo* 335 b 11 ff.

pores 324 b 26 ff., 325 b 2 ff., 326 b 7 ff.

potentiality 316 b 21, 317 b 16 ff., 318 a 21, 320 a 13 ff., 320 b 26, 322 a 6 ff., 28 ff., 326 b 31 ff., 327 b 23 ff., 334 b 9 ff.

privation 318 b 17, 332 a 23

rarefaction 330 b 10

Socrates 335 b 10

solstices 337 b 12

soul (in Empedocles) 334 a 10

Strife (in Empedocles) 315 a 5 ff., 333 b 12 ff.

substance 314 b 14, 317 b 6 ff., 318 b 15, 35, 319 a 13 ff., 321 a 34, 328 b 33, 335 a 6, 338 b 14 ff.

substratum 315 a 1 ff., 317 a

23, 318 b 9 ff., 322 b 19, 324 a 17, 329 a 16 ff., 334 a 25 ; in Pre-Socratics 314 b 3 ff. ; =material cause 319 a 19 ; dist. property 319 b 6 ff.

sun : in Empedocles 314 b 20 ff., 315 a 10 ; motion of 336 b 18, 338 b 4

time 337 a 22 ff.

transparency 324 b 29, 326 b 11

Unmoved Mover 318 a 4, 324 a 30 ff., 337 a 19 ff.

void 320 b 27 ff., 325 a 4 ff., b 3 ff., 326 a 24, b 15 ff.

water 328 b 35 ff. See elements

weight 323 a 8, 326 a 7 ff., 329 a 12, b 19 ff.

ON THE COSMOS

References are given according to page, column and line of Bekker's Berlin Edition, reproduced in this edition in the left-hand margin.

I. GREEK INDEX

ἄγαλμα 400 a 1
 ἄγαλματοποιός 399 b 33
 ἄγγελιαφόρος 398 a 31
 ἄγονος 394 a 20
 ἀδράστεια 401 b 13
 αἰθέριος 392 a 31, b 1, 401 a 17
 αἰθήρ 392 a 5, 30, 393 a 3, 396 b 27
 αἰθρία 394 a 22 ff.
 αἶθριος 401 a 17
 αἶπος 398 b 27
 αἶσα 401 b 14
 αἰτία 397 b 9, 398 a 4, b 35, 399 a 26, 401 b 9
 αἰών 391 b 19, 397 a 10, 11, 31, b 8, 401 a 16
 ἀκήρατος 392 a 9
 ἀκμή 399 a 29
 ἀκοντίζεσθαι 392 b 3, 395 b 4
 ἀκοσμία 399 a 14
 ἀκρόπολις 399 b 34
 ἄλεεινός 392 b 8
 ἀλήθεια 391 a 4
 ἀλλοιοῦσθαι 392 b 9, 400 a 22
 ἄλως 395 a 36 ff.
 ἄμπωτις 396 a 26
 ἀμφιφαής 395 b 14
 ἀνάβλυσις 396 a 22

ἀνάγκη 391 b 21, 400 a 1, 401 b 8
 ἀνάδοσις 395 a 9
 ἀναθυμιάσις 394 a 9, 19, b 6
 ἀνακαμψίπνοος 394 b 36
 ἀνάλυσις 394 b 17
 ἀναπνοή 395 b 20, 397 a 32
 ἀνάσχεις 393 b 2
 ἀνατολή 394 b 19, 23, 399 a 22
 ἀναφύσημα 395 a 8, 396 a 21
 ἀναφύσεις 395 b 21
 ἀναχώρημα 396 a 18
 ἀναχώρησις 400 a 27
 ἀνδράποδον 398 a 10
 ἀνὴρ 399 a 16
 ἄνθρωπος 392 a 17, b 19, 397 b 14, 398 a 6, 400 a 16
 ἀνοΐδησις 399 a 27
 ἀντακοπή 396 a 19
 ἀνταρκτικός 392 a 3
 ἀντίπαλος 394 a 22
 ἀντίπορθμος 392 b 23
 ἀντίστασις 397 a 1
 ἄντρον 391 a 21
 ἄξων 391 b 26
 ἀπαρκτίας 394 b 29, 32
 ἀπηλιώτης 394 b 23

INDICES

ἀπλανής 392 a 10, 17, 22
 ἀπόγειος 394 b 14
 ἀποδεκτήρ 398 a 25
 ἀπόθραυσς 394 a 33
 ἀπόπαλσις 396 a 9
 ἀργέστης 394 b 25, 30
 ἀργής 395 a 27
 ἀρετή 399 b 21
 ἀρκτικός 392 a 3
 ἄρκτος 394 b 20, 395 a 3
 ἄρμα 400 b 7
 ἁρμονία 396 b 17, 25, 399 a 12,
 17, b 31, 400 a 4
 ἄροισις 399 b 17
 ἄρσις 396 a 26
 ἄρρεν, τό 396 b 9
 ἀρχή 396 a 34, b 25, 398 a 27,
 33, 399 a 35
 ἄσπις 399 b 3, 35
 ἀστραπαῖος 401 a 16
 ἀστραπή 392 b 12, 394 a 18,
 395 a 16
 ἄστρον 391 b 17, 392 a 5, 10,
 395 b 1 ff., 8, 397 a 9, 399
 a 20, 400 a 21
 ἀτμώδης 394 a 14, 19, 27
 ἄτρακτος 401 b 15
 ἀτροφεῖν 395 b 28
 αὔρα 397 a 35
 αὐτουργεῖν 398 a 6, b 4
 αὐτουργός 397 b 22
 αὐχὴν 393 a 22, b 6, 398 b 17
 ἀφρώδης 394 a 35
 ἀψεύδεια 397 a 11
 βαθύξυλος 392 b 18
 βασιλείος 398 a 15
 βασιλεύς 398 a 11 ff.
 βίαιος 395 a 5 ff., 22, 400 a 25
 βίος 397 a 18, 399 b 16, 400 a 15
 βόθυνος 392 b 4, 395 b 12
 βορέας 394 b 20, 28 ff., 395 a 4

βόρειος 392 a 3, 395 b 15, 399
 a 23
 βουλευτής 400 b 17
 βράστης 396 a 3
 βριθος 394 b 2
 βρόμος 395 a 13, 396 a 12
 βρονταῖος 401 a 17
 βροντή 392 b 11, 394 a 18, 395
 a 13, 16
 βυθός 392 b 32, 395 a 9
 γένεσις 395 b 5, 396 a 30, 397
 b 3
 γενετήρ 397 a 4
 γενέτωρ 397 b 21, 399 a 31
 γένος 400 b 1, 34
 γέρων 396 b 3, 400 b 2
 γεωγραφεῖν 393 b 20
 γνόφος 392 b 12
 γονεύς 400 b 3, 6
 γονή 399 a 28
 γόνιμος 394 a 27, b 11, 397 a 12
 γράμμα 396 b 18
 γραμματική 396 b 17
 γυνή 399 a 16
 δαιμόνιος 391 a 1, 400 b 1
 δένδρον 396 a 23, 399 a 27
 δεσμωτήριον 400 b 20
 δεσπότης 398 a 22
 δημιουργεῖν 396 b 31
 δημιουργία 400 a 1
 δημοβοινία 400 b 21
 διαγράφειν 391 a 18
 διάθεσις 396 b 6
 δίαίτα 398 b 32
 διακόσμησις 391 b 11
 διάκοσμος 399 b 16, 400 b 32
 διάμετρος 391 b 26
 διάνοια 391 a 14
 διάττειν 392 b 3, 395 a 32
 δικαστήριον 400 b 17

ON THE COSMOS

δικαστής 400 b 19
 δίνη 396 a 23
 διόρθωσις 400 b 29
 δοκίς 392 b 4, 395 b 12
 δορυφόρος 398 a 20
 δοῦλος 398 a 30
 δροσopάχη 394 a 26
 δρόσος 394 a 15, 23 ff., 399 a 25
 δρυμός 392 b 18
 δύναμις 392 a 7, b 9, 396 b 29,
 397 a 16, b 19 ff., 398 a 2,
 b 8, 20, 399 b 20
 δυναστεύειν 395 a 2
 δύσις 393 a 18, 394 b 21 ff., 399
 a 22

ἐαρινός 395 a 4
 ἐγκάρσιος 392 a 12, 393 a 28
 ἐγκλισίς 396 a 9
 ἐγκόλπιος 394 b 15
 ἔδρα 397 b 25
 ἔθνος 396 b 2, 398 a 29
 εἶδος 400 b 34
 εἰκών 396 b 14
 εἰμαρμένη 401 b 9
 εἰρήνη 399 b 19
 ἐκβολή 396 a 23
 ἐκδημεῖν 391 a 12
 ἐκκλησιασστής 400 b 18
 ἔκλευκος 394 a 35
 ἐκνεφίας 394 b 18
 ἔκρηξις 395 a 15
 ἔκτασις 395 a 8
 ἔκφυσις 396 a 23, 399 a 27
 ἐλευθέριος 401 a 24
 ἐλέφας 398 a 16
 ἐλικία 395 a 27
 ἔμφασις 395 a 29 ff.
 ἔμφυχος 394 b 11
 ἐναντίος 396 a 34, b 1 ff., 24,
 32, 398 b 26
 ἐνδόσιμος 399 a 19

ἐνδοσις 398 b 26
 ἐνέργεια 398 b 16
 ἐνθουσιᾶν 395 b 27
 ἐνιαυτός 397 a 14, 399 a 8
 ἐξακοντισμός 395 b 5
 ἔξαψις 395 b 3
 ἐξυδρις 394 b 19
 ἐπιδρομή 396 a 19, 400 a 26
 ἐπικάρπιος 401 a 19
 ἐπίκηρος 392 a 34
 ἐπικλίντης 396 a 1
 ἐπιννοεῖν 391 b 7
 ἐπίνοια 399 b 17
 ἐπιτέχνησις 398 b 10
 ἐπιφάνεια 392 a 18, 396 b 31
 ἐποπτήρ 398 a 31
 ἐπώνυμος 397 a 6
 ἐρκείος 401 a 20
 ἐσπέριος 395 b 14; cf. 398 a
 28, 400 a 32
 ἐστία 391 b 14
 ἑταυρεῖος 401 a 22
 ἐτήσιος 395 a 2
 ἔτος 399 a 23
 εὐθύπνοος 394 b 35
 εὐμάρεια 398 b 35
 εὐριπος 396 a 25
 εὐρόνοτος 394 b 33
 εὐρος 394 b 20, 22 ff.
 εὐρυθμία 398 b 19
 εὐσεβεῖς, οἱ 400 a 34
 εὐχή 400 a 17
 ἐφήμερος 393 a 5
 ἑώς 394 a 11, 395 b 14; cf.
 398 a 29, 400 a 31

ζέφυρος 394 b 20, 25 ff., 395 a 3
 ζοφώδης 392 b 6
 ζωγραφία 396 b 12
 ζώδιον 392 a 13
 ζωή 399 b 21
 ζῶον 391 b 14, 392 b 15, 19,

INDICES

393 a 5, 394 b 10, 397 a 17 ff.,
b 23, 398 b 3, 18, 30, 399 a
28, 400 b 34, 401 a 7

ζωοφόρος 392 a 11

ζωστήρ 399 b 4

ἡγεμών 391 b 6, 398 a 6, 399 a
30, 400 b 8

ἦθος 398 b 33

ἤλεκτρον 398 a 15

ἥλιος 392 a 29, 393 b 2, 395 a
33, b 2, 396 b 27, 397 a 9, 398
b 8, 399 a 8, 21, 400 a 21

ἡμέρα 397 a 13, 399 a 2, 22

ἡμεροδρόμος 398 a 30

ἡνίοχος 400 b 7

ἡπειρος 392 b 19, 21, 393 a 7,
b 19, 400 a 27

ἥρως 400 b 22

θαυμάζειν 391 b 1

θεῖος 391 a 1, 15, b 16, 392 a 9,
30 f., 397 b 19, 33, 398 b 13,
20

θεολογεῖν 391 b 4

θεός 391 b 10 ff., 393 a 4, 397 b
14 ff., 398 a 22, b 2, 6, 399 a
18, b 19, 400 a 3, 16, b 8, 22,
28, 401 a 10, b 23

θεραπεία 400 b 22

θερινός 394 b 22 ff.

θέρος 395 a 2, 397 a 12

θέσις 391 a 5, 392 a 23, 394 b 5

θεσμοθέτης 400 b 16

θεσμός 401 a 10

θεωρία 391 a 24

θῆλυ, τό 396 b 9

θλίψις 394 a 30

θρασκίας 394 b 30

θραῦσμα 394 b 4

θύελλα 395 a 6

θύρα 398 a 18

θυοσία 400 b 22

θώραξ 399 b 4

ἰᾶπυξ 394 b 26

ἰδέα 394 a 16, 395 b 11, 397 a
27, 398 b 14, 399 a 34, 400
b 13

ἱερός 392 a 26

ἰζηματία 396 a 4

ἰκέσιος 401 a 23

ἰππεύς 399 b 7

ἵππος 399 b 5

ἱρις 395 a 30, 32 ff.

ἰσημερινός 394 b 24 ff.

ἰσθμός 393 b 25 ff.

ἰσομοιρία 396 b 35

ἱστορία 391 b 6

καθάρσιος 401 a 23

καικίας 394 b 22, 28, 395 a 1

καινουργούμενα, τά 398 a 35

καιρός 396 a 27, 397 a 26, 399 a
24, b 1

καπνώδης 394 a 13

καρπός 399 a 28, 401 a 19

καταιγίς 395 a 5

κατασκευή 398 b 24, 399 a 6, 30

κάτοπτρον 395 a 34

κέρας 393 b 5, 399 b 8

κεραύνιος 401 a 17

κεραυνός 392 b 12, 394 a 18, 395
a 22 ff., 397 a 21, 401 a 18

κίνησις 391 b 5, 16, 392 a 30,
b 2, 7, 398 b 13 ff.

κυρκίας 394 b 31

κλίμα 392 a 3

κνημῖς 399 b 4

κοίλωμα 395 b 34

κόλπος 393 a 21, b 3 ff., 394 b
15, 398 b 31

κομήτης 392 b 4, 395 a 32,
b 9

ON THE COSMOS

κοπή 394 a 34
 κορυφαῖος 399 a 15, 19, 400 b 8
 κόσμος 391 a 26, (def.) 391 b
 9 ff., 19, 26, 392 b 33 ff., 393
 a 4, 396 a 34, b 24, 30, 397 a
 4 ff., b 11 ff., 22, 398 a 32,
 b 2, 8, 23, 399 a 1, 13, b 18,
 25, 400 a 3, b 8, 27

κράνος 399 b 4
 κράσις 396 b 18, 25
 κρατήρ 400 a 33
 κρύσταλλος 394 a 25
 κυβερνήτης 400 b 6
 κύβος 398 b 28
 κύλινδρος 398 b 28
 κύμα 396 a 19, 26, 400 a 28
 κυνηγέσιον 398 a 25
 κύρβεις 400 b 30

λαῖλαψ 395 a 7
 λαμπάς 395 b 11
 λεπτομερής 392 a 35, 394 a 10
 λιβόνοτος 394 b 34
 λιβόφονιξ 394 b 34
 λιμήν 393 a 20
 λίμνη 393 b 8, 394 b 16
 λύψ 394 b 27, 34
 λογισμός 399 a 31
 λόγος 397 b 13, 20, 398 a 13,
 400 a 3, 17
 λοξός 393 b 15
 λοχαγός 399 b 5
 λόχος 399 b 6

μάθησις 391 a 8, 397 b 11
 μέγεθος 391 a 5, 19, 392 b 1,
 394 b 4, 397 a 14
 μειλίχιος 401 a 24
 μεσημβρία 394 b 21
 μεσημβρινός 394 b 29
 μέσον (τοῦ κόσμου), τό 391 b 12,
 cf. 392 b 33

μετάθεσις 400 b 29
 μέτρον 397 a 10
 μῆκος 393 b 21, 395 b 6
 μήν 397 a 14, 399 a 6
 μήρινθος 398 b 17
 μήτηρ 391 b 14
 μηχανοποιός 398 b 15
 μικροψυχία 391 a 23
 μῖξις 395 a 2
 μοῖρα 401 b 12, 14 ff.
 μουσική 396 b 15
 μύδρος 395 b 23
 μῦθος 401 b 22
 μύκημα 396 a 13
 μυκητής 396 a 11
 μύχιος 395 b 31
 μυχός 393 b 24

νᾶμα 393 a 6, 394 a 12, 397 a 25
 ναῦς 400 b 6
 νεανίσκος 400 b 6
 νέμεσις 401 b 12
 νέος 396 b 3
 νεόχμωσις 397 a 20
 νευροσπάστης 398 b 17
 νέφος 392 b 9, 394 a 16, 21, 26,
 28, 33, 394 b 17, 395 a 11 ff.,
 33

νήμα 401 b 16
 νήσος 392 b 19 ff., 393 a 9 ff.,
 b 11, 18, 395 b 22
 νιφετός 394 b 1
 νομοθέτης 400 b 8
 νόμος 399 b 18, 400 b 14, 28
 νομός 398 b 33
 νότιος 392 a 4, 395 b 15, 399 a
 24
 νότος 394 b 21, 31 ff.
 νοῦς 391 a 12
 νύξ 397 a 13, 399 a 2, 22

ξένιος 401 a 22

INDICES

ὄγκος 391 b 24, 394 b 4
οἰκητήριον 391 b 15, 393 a 5
οἰκουμένη 392 b 20, 26, 393 a 10, 16, b 9, 15, 18, 394 a 6
οἶκος 398 a 8, 15, 399 b 14
οἰκτίζειν 391 a 22
ὄλα, τά 391 a 3, b 11, 396 b 23, 397 a 12, b 9, 400 a 4
ὀλυμπίας 394 b 26
ὄμβρος 392 b 10, 394 a 16 ff., 397 a 34, 400 a 26
ὀμίχλη 394 a 15, 19
ὀμόγνιος 401 a 21
ὀμολογεῖν 396 b 33
ὀμολογία 396 b 34
ὀμόνοια 396 b 4, 10, 397 a 4, 23, 400 a 4
ὀμόφυλον, τό 396 b 10
ὀμφαλός 399 b 30
ὄνομα 401 a 14
ὀπώρα 401 a 5
ὄργανον 398 b 15
ὀρνιθίας 395 a 4
ὄρος 391 a 20, 392 b 17
ὄρος 393 b 22, 31, 400 a 7
οὐράνιος 391 a 9, 400 a 21, 401 a 25
οὐρανός 391 b 9, 15, 19, 392 a 5, 10, 18, 396 b 23, 397 a 9, 21, b 27, 398 a 2, b 9, 399 a 1, 13, 20, 32, 400 a 7 ff., 30, b 32
οὐσία 392 a 35, 394 b 11, 397 b 20

παγετώδης 392 b 6, 397 b 1
πάγος 394 a 16, 397 b 1
παλαιοί, οἱ 397 b 16
παλαμναῖος 401 a 23
παλματίας 396 a 10
πάν, τό 396 b 34, 397 a 24, 398 b 22

πανήγυρις 400 b 21
παράτριψις 395 b 5
πάταγος 395 a 13
πάτριος 397 b 13
πατρῶος 401 a 21
πάχνη 392 b 10, 394 a 25
πάχος 394 a 27, b 17
πένης 396 b 2
πέπανσις 399 a 28
πεπρωμένη 401 b 10
περαιοῦν 391 a 12
περιαγωγή 391 b 18, 399 a 2
περίβολον 398 a 15, 22
περιέχον, τό 399 a 25
περικλύζειν 392 b 29
πέτρα 396 a 6
πηγή 392 b 15, 395 b 19, 396 a 6, 22
πηλός 396 a 6
πίθος 395 b 12
πίλημα 394 b 3, 395 a 12
πλανητός 392 a 14, 19
πλάτος 393 b 18
πλημμελεῖν 392 a 6
πλημυρίς 397 a 28
πλῆξις 395 a 21
πλούσιος 396 b 2
πνεῦμα 394 a 17, b 9, 396 a 5, 15, 24, 397 a 32, 400 a 28
ποιητής 397 b 26, 400 a 10, 401 a 1, 24
ποικίλλειν 392 b 17
πόλεμος 398 a 25, 399 b 1, 19
πολιεύς 401 a 19
πόλις 391 a 19, 392 b 18, 396 b 1, 398 a 8, 399 b 14, 400 a 29, b 7, 27, 401 a 20
πολιτεία 399 b 18, 400 b 15
πόλος 391 b 25, 392 a 1, 2, 394 b 29, 32
πολυχειρία 398 b 12
πολυώνυμος 401 a 12

ON THE COSMOS

πορθμός 396 a 25
 πρηστήρ 394 a 18, 395 a 10, 23
 προθύρον 398 a 17
 πρόσγειος 392 a 16
 πρόσοδος 398 a 24
 πρόσωπον 399 b 35
 προφητεύειν 391 a 16
 πρόωσις 396 a 8, 20
 πρυτανεῖον 400 b 19
 πυλών 398 a 16
 πυλωρός 398 a 21
 πῦρ 395 b 3 ff., 19, 396 a 22, b 30
 πυρκαϊά 397 a 28, 400 a 29
 πυρόεις 392 a 25, 399 a 9
 πυρώδης 392 a 6, b 2, 395 a 20, 397 a 23

 ράβδος 395 a 30, 35 ff.
 ῥεῦμα 400 b 2
 ῥήγμα 395 a 9, 397 a 32
 ῥήκτης 396 a 5
 ῥῆξις 394 b 17
 ῥοή 396 a 23
 ῥοπή 399 b 11
 ῥύσις 395 b 8

 σάλπιγξ 399 b 2
 σατράπης 398 a 29
 σεισμός 395 b 36 ff., 397 a 28, 400 a 25
 σέλας 392 b 3, 395 a 31, b 4 ff., 9
 σελήνη 392 a 29, 395 a 33, b 2, 396 a 27, b 28, 397 a 10, 398 b 9, 399 a 6, 400 a 21
 σεμνότης 398 a 12
 σημάντωρ 399 b 9
 σημεῖον 391 b 21
 σῆραγξ 395 b 31
 σκηπτός 395 a 25, 28
 σκοπός 398 a 31

σκοτεινός 396 b 20
 σοφός 392 b 19
 σπέρμα 400 b 33
 σπουνάζειν 391 a 3
 σπουνδή 391 a 18
 στάδια 393 b 20
 στηλή 393 a 19, 24, b 10, 22, 32
 στηριγμός 395 b 7
 στηρίζεσθαι 392 b 5, 395 b 4
 Στίλβων 392 a 26
 στοιχεῖον 392 a 8, b 35, 396 a 28, b 34
 στόμα 393 a 18, b 31, 394 a 2
 στόμιον 395 b 27
 στρατηγός 398 a 25, 29
 στρατιά 398 a 8
 στρατίος 401 a 22
 στρατόπεδον 399 b 2, 400 b 8
 στρόβιλος 395 a 7
 στρωματόδεσμος 398 a 8
 συγγενής 391 a 6, 14
 σύμπαν, τό 396 a 31, 397 b 7, 399 a 18, b 10
 σύμπηξις 394 a 35
 συμπληγάδες 392 b 13
 συμφρονεῖν 391 a 14
 σύμφωνος 396 b 8, 15
 συναναχορεύειν 391 b 18
 συνέδριον 400 b 18
 συνεκτικός 397 b 9
 σύνθημα 399 b 6
 συνίξεις 396 a 3
 συνωρίς 399 b 5
 σύστασις 394 a 24, 396 b 23
 σύστημα 391 b 9
 σύστρεμμα 394 a 32
 σφαῖρα 391 b 24, 392 a 22, 396 b 31, 398 b 28, 399 a 3
 σφαιροειδής 391 b 19
 σφίγγειν 393 b 9
 σχαστηρία 398 b 15

INDICES

σῶμα 391 a 8, b 16, 392 a 30,
397 b 28
σωστικός 397 a 3
σωτήρ 397 b 20, 401 a 24
σωτηρία 396 b 34, 397 a 31,
b 5, 16, 398 a 4, b 10, 400
a 4

ταμίας 398 a 24
ταξίαρχος 399 b 7
τάξις 391 b 11, 392 a 31, 397 a
9, 399 b 7, 32, 400 a 22
ταραχή 397 b 32
τάχος 395 b 7
τεῖχος 398 a 18
τέχνη 396 b 11, 19, 399 b 17
τιμῆμα 395 a 33
τόρνος 391 b 22
τρόμος 396 a 10
τροπαιοῦχος 401 a 23
τροπικά, τά 392 a 12
τυφών 392 b 11, 395 a 24, 400 a
28
τύχη 396 b 7, 401 a 26

ύετιος 401 a 18
υετός 394 a 31, 399 a 24, 401 a
18
ὑπατος 397 b 25
ὑπεροχή 391 b 4, 398 a 12, b 1
ὑπηρεσία 398 b 11
ὑπολείμμα 394 a 22
ὑπόστασις 395 a 30 ff.
ὑψος 391 a 5, 398 a 12

Φαίνων 392 a 23
φαντασία 395 a 34, b 6
φάντασμα 395 a 29, b 11
φερέσβιος (γῆ) 391 b 13
φθίσις 399 a 29
φθόγγος 396 b 16
φθορά 396 a 30, 397 b 4

φίλιος 401 a 22
φιλοσοφία 391 a 2, 11, b 7
φλόγες 392 b 3, 397 b 1 ff., 400
a 29
φλογμός 400 b 4
φλογώδης 392 a 35
φρυκτώριον 398 a 31
φύλαξ 398 a 21
φυσικός 399 b 25
φύσις 391 a 19, b 4, 10, 392 a 31,
b 1, 6, 14, 32, 394 a 5, 15,
396 b 6 ff., 32, 397 a 3 ff., 17,
27, b 15, 398 b 20, 399 a 32,
b 22, 400 b 13, 33, 401 a 26,
b 20
φύττεις 399 b 17
φυτόν 392 b 15, 394 b 10, 397 a
24, 400 b 34
φωνή 396 b 16, 399 a 16, b 3
Φωσφόρος 392 a 27, 399 a 8

χάλαζα 392 b 11, 394 a 16,
b 1
χάσμα 396 a 4, 18
χείμαρρος 400 a 34
χειμερινός 394 b 24 ff.
χειμών 395 a 1, 397 a 13, 22,
400 a 9
χθόνιος 395 a 10, 401 a 25
χιών 392 b 10, 394 a 16, 32
χλόη 392 b 17
χοή 400 b 22
χορεύειν 399 a 12
χορός 399 a 15, 400 b 7
χρησμοδεῖν 395 b 28
χρόνος 401 a 15, b 16
χρυσός 398 a 15
χρῶμα 396 b 13

ψακάς 394 a 30
ψαλῆς 399 b 30, 32
ψιλός 399 b 8

ON THE COSMOS

ψολόεις 395 a 26
ψυχή 391 a 11, 15, 397 a 19,
 399 b 14, 400 b 14
ψύχος 394 b 7

ῥραι 397 a 12, 399 a 23
ῶσσης 396 a 8
ῶτακουστής 398 a 21
ῶφέλεια 397 b 31, 398 a 1

II. ENGLISH INDEX

Abyssinia 393 b 15 n.
 Acropolis 399 b 34
 Adriatic Sea 393 a 28
 Aegean Sea 393 a 30
 Aeolian Islands 395 b 21
 aether 392 a 5
 Aëtion 396 b 12 n.
 air 392 b 5, 396 b 29
 Aisa 401 b 14
 Albion, see England
 Alexander 391 a 2
 Aloadae 391 a 11
 Antarctic Pole 392 a 4
 Aparctias (wind) 394 b 29
 Aperiotes (wind) 394 b 23
 Aphrodite (planet), see Venus
 Apollo 392 a 27
 Arabian Gulf (Red Sea) 393
 b 4 n., 16, 18
 Arabian Isthmus 393 b 32
 Arctic Pole 392 a 3
 Ares (planet), see Mars
 Argestes (wind) 394 b 25
 art : imitates nature 396 b 12
 Asia 393 b 22, 26 ff.
 Athena, statue of (simile)
 399 b 34
 Atlantic Ocean, see Ocean
 Atropos 401 b 18
 axis 391 b 26

 Boreas 394 b 20, 28
 breezes 394 a 17, 397 a 34
 British Isles 393 b 12, 17
 Bura, Achaia 396 a 21 and n.

Caecias (wind) 394 b 22
 Cambay, see Cutch
 Cambyzes 398 a 11
 Caspian (Hyrcanian) Sea 393
 b 3 n., 5 n., 24, 27
 catapults 398 b 15
 Celts 393 b 9
 Ceylon 393 b 14
 chariot (simile) 400 b 7
 chorus (simile) 399 a 15, 400
 b 7
 Circias (wind) 394 b 31
 city 396 b 1, 400 b 7, 14
 Clotho 401 b 21
 clouds 392 b 9, 394 a 16,
 26
 comets, 392 b 4, 395 a 32
 continents 392 b 21, 393 a
 7
 Corsica 393 a 13
 Corycian Cave 391 a 21
 Cosmos, defined 391 b 9 ff.
 Cretan Sea 393 a 29
 Crete 393 a 13
 Cronus (planet), see Saturn
 Cutch 393 b 4 n.
 Cyclades 393 a 15
 Cyprus 393 a 13

 Darius 398 a 12
 Deïoces 398 a 10 n.
 Delphi 395 b 29
 Destiny 401 b 9
 dew 394 a 15, 23
dynamis, see power

INDICES

- earth (element) 392 b 14, 33,
 396 b 30
 earth, the 391 b 13, 397 a 24,
 b 30
 earthquakes 395 b 36, 397 a
 28 ff., 400 a 25
 Ecbatana 398 a 10 n., 14,
 34
 Egypt 394 a 1
 Egyptian Sea 393 a 29
 elements 392 a 8, b 35, 396
 b 34
 Empedocles 396 b 12 n., 399
 b 25
 England 393 b 12
 Ephialtes, see Giants
 Erythraean Sea 393 b 4 n.
 Etesian winds 395 a 2
 Etna 395 a 24 n., b 21, 400
 a 33 and n.
 Euboea 393 a 13
 Euronotus (wind) 394 b
 33
 Europe 393 b 22 ff.
 Eurus 394 b 20, 24
 exhalations 394 a 9 and n.

 Fate (*πεπρωμένη*) 401 b 10
 Fates, the 401 b 15
 fire (element) 392 b 2, 395 a
 20, 396 b 30
 fire, subterranean 395 b 19 ff.
 flames 392 b 3
 floods 397 a 28
 frost 392 b 10, 394 a 16, 26,
 397 b 1

 Galatian Gulf 393 b 9
 Galatian Sea 393 a 27
 gales 392 b 11
 Giants 391 a 11 n., 395 a
 24 n.

 Gibraltar 392 b 23 n.
 God 391 b 11, 397 b 14 ff.,
 398 a 22
 gods 391 b 15, 397 b 17
 gods, abode of the 391 b 16,
 393 a 4

 hail 392 b 11, 394 a 16, b 1
 halo 395 a 36
 harmony 396 b 8 ff., 25
 heavens (*οὐρανός*), 391 b 16 ff.,
 400 a 7
 Helice, Achaia 396 a 21
 and n.
 Hellespont 393 b 1, 398 a
 27
 Hera 392 a 28
 Heracleitus 396 b 20, 401 a
 11
 Heracles, Pillars of 393 a 24,
 b 10, 23, 32
 Hermes (planet), see Mer-
 cury
 Hero 398 b 15 n.
 Herodotus 398 a 10 n.
 Hyrcanian Sea, see Caspian
 Sea

 Iapix (wind) 394 b 26
 ice 394 a 25
 Ierne, see Ireland
 India 392 b 23 n.
 India, Gulf of 393 b 3
 Indians 393 b 14
 Indus 398 a 28
 inhabited world (*oikoumene*)
 392 b 20 ff.; dimensions
 of 393 b 18
 inhabited worlds, plurality
 of 392 b 23 ff.
 Ireland 393 b 13
 islands 392 b 20, 393 a 8 ff.

ON THE COSMOS

Jupiter (planet) 392 a 25,
399 a 10

keystones (simile) 399 b 30

Lachesis 401 b 20

land 393 a 7

law (simile) 400 b 14

lawgiver (simile) 400 b 7

Lebadeia 395 b 29

Lesbos 393 a 14

Libonotus (wind) 394 b 34

Libophoenix (wind) 394 b
34

Libya 393 b 22, 31

lightning 392 b 11, 394 a 18,
395 a 16, 25 n.

Lipara 395 b 21

Lips (wind) 394 b 27

machines 398 b 15 and n.

Madagascar 393 b 15 n.

Maetis, Lake 393 a 32, b 7

Mars 392 a 26, 399 a 9

Mediterranean, geography
of 393 a 12, 16 ff., b 3 n.,
29

Mercury 392 a 26, 399 a 9

meteors 392 b 3

military camp (simile) 399 b
2, 400 b 8

mind 391 a 12

mist 394 a 15, 19

moon 392 a 29, 396 a 27, 397
a 10, 398 b 9, 399 a 6, 400
a 21

music 396 b 15

Myrtoan Sea 393 a 30

Necessity 401 b 8

Neo-Pythagoreans 396 b
20 n.

Nile 393 b 5 n., 31, 394 a 2

Notus (wind) 394 b 21, 32

Nyssa 391 a 21

Ocean 392 b 22 ff., 393 a
16 ff., b 3 n., 30

oikoumene, see inhabited
world

Olympias (wind), 394 b 26

Olympus 400 a 7

"opposite principles" 396
a 31

Ornithian winds 395 a 4

Orphic books 401 a 27

Ossa 391 a 11, 21

Otus, see Giants

painting 396 b 21

Pamphylian Sea 393 a 30

Parthenon 399 b 34 n.

Pelion 391 a 11 n.

Persia, Gulf of 393 b 3 n.

Persia, King of (simile) 398
a 10 n.

Persian Empire 398 a 27

Phaethon 400 a 31

Phebol 393 b 15

Pheidias 399 b 33

philosophy 391 a 2, b 7

Phosphorus (planet), see
Venus

Phrygia 395 b 30

pits (in the sky) 392 b 4

planets 392 a 13

planks (in the sky) 392 b 4

Plato 401 b 24

poles 391 b 25 ff.

Polygnotus 396 b 12 n.

Pontus 393 a 32, b 24 ff.

power 396 b 29, 397 b 23 ff.
and n., 398 b 8, 20

Propontis 393 b 1

INDICES

- | | |
|--|---|
| <p>puppet-shows 398 b 16 and n.
 Pyroeis (planet), see Mars</p> <p>rain 392 b 10, 394 a 16, 27,
 397 a 33, 400 a 26
 rainbows 395 a 30
 Red Sea, see Arabian Gulf
 rivers, 392 b 15, 393 a 6</p> <p>Sardinia 393 a 13
 Sardinian Sea 393 a 27
 Saturn (planet) 392 a 24, 399
 a 11
 Scythians 393 b 8
 sea 392 b 14, 393 a 6
 ship (simile) 400 b 6
 shooting stars, 395 a 32
 Sicilian Sea 393 a 28
 Sicily 393 a 12
 snow 392 b 10, 394 a 16,
 32
 Socotra 393 b 15 n.
 soul 391 a 11, 399 b 14
 Spain 393 b 17
 Sporades 393 a 14
 springs 393 a 6
 stars 391 b 17, 392 a 10,
 397 a 9, 399 a 20, 400 a
 21
 streams 392 b 15
 sun 392 a 29, 397 a 9, 399 a
 8, 21, 400 a 21
 Susā 398 a 14, 34
 Syrian Sea 393 a 30
 Syrtes 393 a 25</p> | <p>Tana, Lake 393 b 15 n.
 Tanaïs, River 393 b 5 n., 26,
 30
 Taprobane, see Ceylon
 Thrascias (wind) 394 b 30
 thunder 392 b 11, 394 a 18,
 395 a 13
 thunderbolts 392 b 12, 394 a
 18, 395 a 22, 397 a 21
 tides 396 a 26
 tropics 392 a 12
 Typhon 395 a 24 n.
 typhoons 400 a 29
 Typhos 395 a 24 n.</p> <p>Venus (planet) 392 a 28, 399
 a 8
 volcanoes 395 b 21</p> <p>water (element) 392 b 30,
 395 b 19, 396 b 30
 waves, tidal 396 a 17 ff.
 whirlwinds 392 b 11
 wind, names and types of 394
 b 8—395 a 10
 wind, subterranean 395 b 19,
 26 ff.</p> <p>Xerxes 398 a 11, b 4</p> <p>Zephyrus (wind) 394 b 20, 25
 Zens (god) 400 a 19, 401 a 14,
 28
 Zeus (planet), see Jupiter
 Zodiac 392 a 11</p> |
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